TANGANYIKA TERRITORY.

IMPERIAL BUREAU OF MYCOLOGY
15 OCT 1927

Report

of the

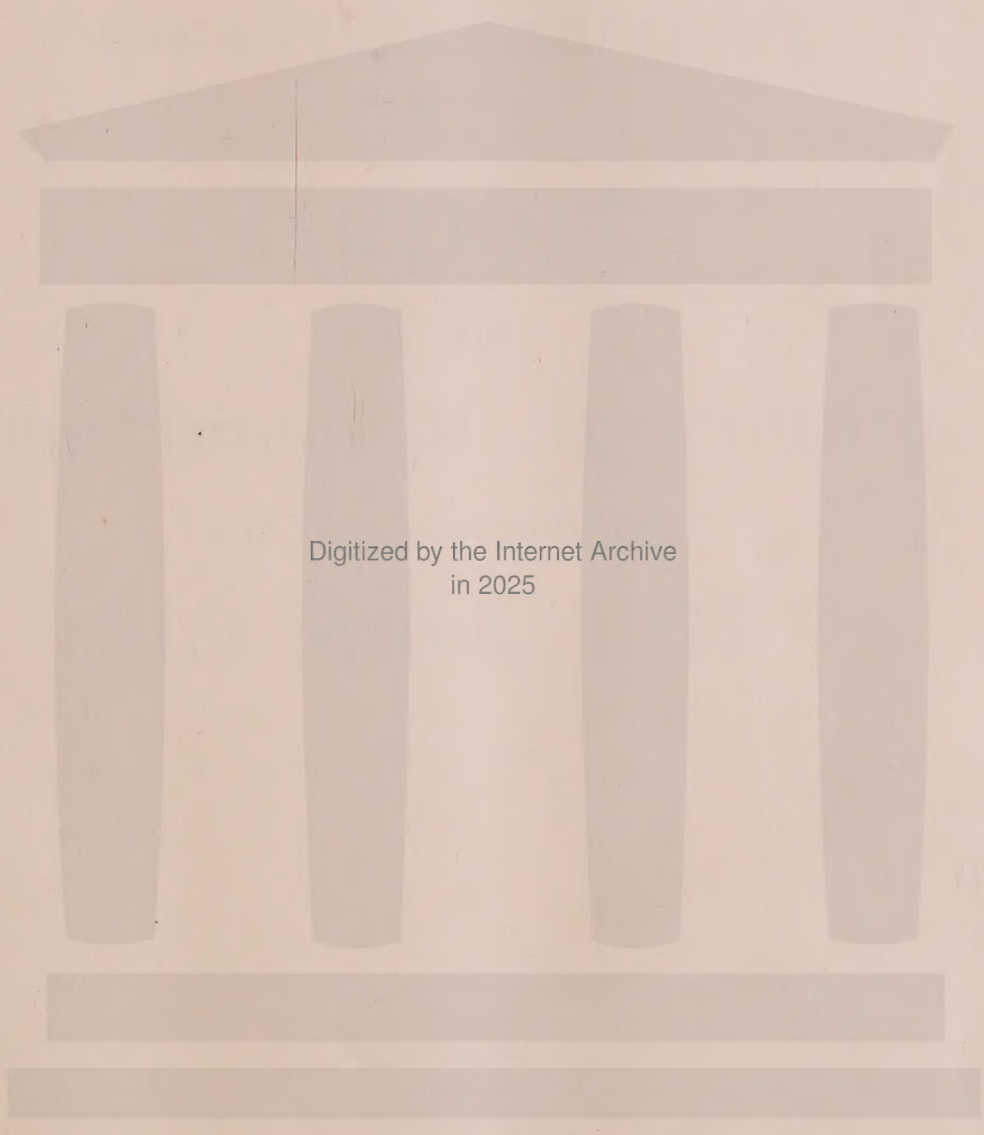
Department of Agriculture

for the year ending

31st March, 1927.

Price 2s. 6d.

PUBLISHED BY THE CROWN AGENTS FOR THE COLONIES,
4, MILLBANK, LONDON, S.W.1.
1927.



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Report of the Department of Agriculture for the year ending 31st March, 1927.

ESTABLISHMENT AND GENERAL ORGANISATION.

1. The staff during the period under review was as follows :—

Director	A. H. Kirby	Dar es Salaam.
Deputy Director	H. Wolfe	,,
Senior Agricultural Officer	D. Prain	Kilwa and Bagamoyo.
,, ,,	J. F. C. O'Brien	Mwanza.
,, ,,	R. W. R. Miller	Lushoto.
Entomologist	A. H. Ritchie	Morogoro.
Mycologist	G. B. Wallace	,,
District Agricultural Officer	O. E. Whitehead	Resigned.
,, ,,	A. E. Haarer	Moshi.
,, ,,	L. C. Edwards	Bukoba.
,, ,,	E. Brand	Lindi.
,, ,,	A. Pitcairn	Mwanza and Shinyanga.
,, ,,	C. K. Latham	Morogoro.
,, ,,	A. S. Richardson	Shinyanga.
,, ,,	A. J. Wakefield	Rufiji.
,, ,,	D. G. Burns	Bukoba and Moshi.
,, ,,	C. M. H. Sutherland	Singida.
,, ,,	W. J. Hill	Lindi and Rufiji.
,, ,,	C. B. Garnett	Kilwa.
,, ,,	D. Sturdy	Shinyanga.
Head Gardener	T. H. Marshall	Dar es Salaam.
Chief Clerk	W. E. Pownall	,,
Clerk	F. O. B. Bennett	,,
Overseer and Ploughing Instructor	E. V. Chowles	Mwanza.
,, ,, ,, ,,	E. T. Ward	Morogoro.
,, ,, ,, ,,	J. W. Williamson	Shinyanga and Nzega.
Coffee Officer	H. R. H. Stone	Western Kilimanjaro.
,, ,,	R. J. Dewar	Eastern Kilimanjaro.

BIOLOGICAL AND AGRICULTURAL INSTITUTE.

Head Gardener	F. M. Rogers	Amani.

2. The Asiatic clerical staff consisted of :—

1st Grade Clerk	J. P. Santa Rita	Dar es Salaam.
4th ,, ,,	L. C. Simeons	,,
4th ,, ,,	N. F. Mascarenhas	,,
4th ,, ,,	F. X. Lobo	,,
4th ,, ,,	A. Fernandes	,,
4th ,, ,,	C. O. Mathews	,,
Overseers, Experimental Stations	R. A. Cameron	Kasulo.
,, ,, ,,	S. G. Kelkar	Dar es Salaam and Singida.

3. The African clerical staff at the close of the year consisted of :—

Overseers, Experimental Stations	S. W. Mzozoyana	Morogoro.
,, ,, ,,	E. G. Keswa	Mpanganya.
Clerk	Frank Mfuni	Dar es Salaam.
,,	Yaha bin Nasoro	,,
,,	E. P. Kondowe	,,
,,	Adolph	Lushoto.
,,	Abdallah Tham	Mwanza.

AGRICULTURAL INSTRUCTION AND EDUCATION.

4. The training of selected natives for the duties of Native Instructors has proved to be simply and successfully accomplished by methods of field training under the District Agricultural Officers, assisted by touring with such officers and with the more experienced Instructors. In the six years of the existence of the Department, the establishment of the present useful Native Instructor staff has been no small task, and its importance as the only means of spreading agricultural instruction among large numbers of small cultivators has been amply proved in the improvement of crop production that has taken place. The increasing number of these Instructors hardly keeps pace with the growing needs of the Territory; the provision of increasing facilities of transport and the spread of the more highly priced crops are slowly bringing the remoter districts into the sphere of economic productivity; but as yet the Instructors continue to be confined almost entirely to those areas which it has been possible to provide with District Agricultural Officers.

5. The function of the local agricultural office in these areas continues to be that of organising, improving and standardising the native agriculture and of assisting non-native agriculture in an advisory capacity upon invitation. The District Agricultural Officer is the agent of the Head of his Department, qualified to act on his own initiative in accordance with the needs and conditions of the local native agriculture, and bound only by Departmental policy and the financial provision accorded to him. The policy provides for no important step to be taken except in agreement with the officer responsible for the administration of native affairs in the area. The direct work of the District Agricultural Officer among native cultivators has continued to be done mainly at meetings arranged for the purpose, wherever possible, on agricultural stations or sub-stations, but also on the farms of local chiefs and headmen. The establishment of a system of local native administrations possessing funds for expenditure on local public purposes is enabling this work to be focussed at centres each possessing its own co-operative plot and seed-farm.

6. Further means of instruction of native farmers continue to be found in the publication in the vernacular monthly journal, *Mambo Leo*, of articles timed to meet the impending seasons. The English and Indian press at Dar es Salaam continues to provide the use of its pages for the dissemination of agricultural news and advice among non-native farmers. Three leaflets were prepared at Head Office during the year and are about to be printed; these deal with the subjects of coffee, coconut and vegetable growing.

IMPROVEMENT AND EXTENSION OF CROP PRODUCTION.

7. The information just given outlines briefly the activities of the Department that exist for improvement and some of the ways in which these are being extended. The Department at present possesses three Experimental Stations. Those at Morogoro and at Mpanganya (Rufiji District) are old-established; the third, at Singida in the Central Province, has recently come into existence for a special purpose, later to be described (paragraph 8). In addition, the Department has gradually established a number of agricultural sub-stations, chiefly for the purpose of demonstration and seed-multiplication, though at the same time this work serves to test the suitability of varieties to the more localised conditions. Other methods of improvement have been added to these activities. The whole is summed up in the paragraphs which follow.

Central Province.

8. For the areas of low and uncertain rainfall in this Province experimental work was continued at the station established at Singida in 1925, with the object of the prevention of dearth of food from which in occasional past years the population has suffered. A study of the conditions led to the choice of early maturing crops, as a means of drought evasion, for testing, and to trial with fodder plants for supplementing the existing grazing. A report of the work at this station will be found under the section "Work in Agricultural Stations," beginning with paragraph 69.

9. The station work was extended by the establishment during the year of four sub-stations—three in the Singida District and one in the Mkalama Sub-district, and the station results will continue to serve as a guide to this extension work. These

sub-stations consist of plots in occupation by leading natives, co-operatively worked by the natives with the Department; and the work already in hand, though not as yet, for the year under review, completed, has consisted of the introduction and growing of early varieties of maize, beans, grain sorghums and millets for multiplication and demonstration. An improved variety of rice (Faya) and of wheat (Florence) are also under cultivation for the same purpose, the rice on soils representing the characteristic belts and basins of mixed gravel, sand and clay, which become water-logged during the rains and retain moisture for some months thereafter.

10. Above these lower-lying soils the clay content declines, but never entirely disappears, and this indeed is the saving factor in the productivity of an area which in the dry season presents a most unfavourable scene, that of an extensive plateau of dry sandy wastes. The average annual rainfall of this semi-arid region, taken at three points—Dodoma, Manyoni and Singida—is 18·4, 25·4 and 22 inches respectively, the months of May to October, inclusive, being practically rainless.

11. Other activities in this area during the year for improvement of crop production consisted of the supply from the Dar es Salaam District of a large quantity of cassava sets (var. Binti Fatuma) and its multiplication at two of the sub-stations for eventual distribution; the commencement of trials with robusta coffee and with drought-resistant fodder trees and plants (in co-operation with the Veterinary Department); and the introduction of date palms; while the introduction of ploughing amongst native cultivators is projected. It will be possible to give results of this work in succeeding annual reports.

Northern Province.

12. The main experimental and extension work in this Province has been with coffee, its premier crop. In co-operation with the Kilimanjaro Planters' Association and the Arusha Coffee Planters' Association, a series of manurial experiments with coffee trees has been designed by the Senior Agricultural Officer, North-eastern Circle (Mr. R. W. R. Miller) to meet the problem of the considerable variation in yields due to a great diversity of conditions. The Senior Agricultural Officer is undertaking a detailed study of the natural conditions of the soils and the climatic conditions affecting the plots, and of the existing state of the trees, as an essential preliminary to the commencement of the experiments.

13. Work was taken in hand during the year of introducing robusta coffee for native cultivation in this Province, in an area remote from the existing coffee areas. This new centre of the native coffee industry is Ufiome, in the Mbulu District.

14. The Kilimanjaro Native Planters' Association (an association of native coffee planters, referred to in the last Annual Report) continued to receive the assistance of the District Agricultural Officer in the management of its affairs, particularly for grading and marketing its coffee crop, with a view to making it eventually an entirely self-supporting body.

15. The services of two Coffee Officers (formerly coffee-growers of considerable practical experience) were specially devoted to this Province for the improvement of the native coffee industry and for advice to coffee planters.

16. Assistance was rendered to the non-native planters in the introduction among them for trial of seed of varieties of wheat and mulberry, the latter for experimental silk culture; and to natives in the introduction of seed potatoes, groundnuts, Madagascar butter beans and improved varieties of maize, rice and bulrush millet.

Tanga Province.

17. The inauguration of agricultural sub-stations has been taken in hand, based on the establishment of one of these in each largely populated centre. For the present, use is being made of the prison farm at Lushoto for the growing and, for demonstration and multiplication, of improved varieties of maize, potatoes and ginger. The Amani Institute, until its independent administration began in February, 1927, served as a most useful centre for multiplication and distribution of improved maize and ginger. At Handeni, co-operative experimental planting

of coconuts among natives has been organised and begun. Rather more extensively, similar co-operative experiments with groundnuts and a medium late variety of maize are in hand; as well as, for those parts requiring a short season crop, introduced early varieties of maize, millets and beans. Two tons of seed potatoes were introduced from Kenya Colony eventually to replace the existing deteriorated stocks.

18. The Senior Agricultural Officer, North-eastern Circle, made a comprehensive agricultural survey of this Province during the year preliminary to extending the activities of the Department to increase and improve the local agriculture, which, in the Tanga and Usambara Districts particularly, has in the past been especially notable for its backwardness and for this reason has been obliged to give way to more important regions in the provision of agricultural services. The activities described in the preceding paragraphs have, in the main, been the first steps taken towards improvement as a result of his recommendations. As an indication of the diversity of natural conditions met with in this region, increasing the difficulty of the work by requiring an unusual variety in crops and methods and an increased number of instructors, the following is quoted from the Senior Agricultural Officer's report:—

"There are in reality four sets of climatic conditions:—

"(*a*) The *coastal* climate with a comparatively low temperature and great humidity;

"(*b*) The *mountainous* region with high rainfall, high daily temperature and cool nights;

"(*c*) The *plains* climate of the desert portion and all the swampy land to the south-west of the Tanga Railway, where intense heat is experienced; and

"(*d*) The Malindi-Kauseni-Mlalo area, which only receives the short rains and which on the whole is dry and hot."

Eastern Province.

19. The Morogoro and Mpanganya (Rufiji) Experimental Stations fall in this Province. The experimental work consists of trials with and multiplication of improved varieties of cotton, maize, rice, beans, sorghums and millets for areas for which the conditions are representative; improved methods of husbandry, applicable to much wider areas; demonstration. Detailed reports of the experimental work will be found in the section commencing with paragraph 69.

20. In the Rufiji District, in co-operation with non-native planters, the best of the strains of cotton of the local seed-stocks, selected by the Cotton Specialist of the Empire Cotton Growing Corporation, was continued to be multiplied for distribution to growers. The resultant seed was expected to cover the whole district in 1927, but owing to a poor growing season 16 tons only were obtained. This selection is designated by the letter "M." Latest reports on the lint from this strain show that it has not maintained its superiority over the 1st quality lint from the ordinary district seed, so that it will be allowed to go back into the district stocks, and next attention will be given to the next best of the selected strains, the determination of which awaits reporting from the British Cotton Research Association through the Empire Cotton Growing Corporation.

21. In co-operation with native growers, trials have been made on native plots in the Rufiji District with two introduced varieties of maize, a medium late white dent (Hickory Hybrid, from Kenya) and an early white flint (White Cango, from South Africa). These are suited to different conditions. The former has now been introduced into native agriculture in the Rufiji River Valley; the latter will be introduced into the drier upland areas. Similar trials are in hand with varieties of rice suited to (*a*) dry lowland conditions and to (*b*) wet lowland conditions.

22. Co-operative trials on native farms in the Morogoro District are with a promising variety of sorghum (Bonganhilo) from the Shinyanga District, and with White Cango maize. In this district also several coffee nurseries are being established for the introduction of robusta coffee among natives in the Uluguru Hills.

23. In the Bagamoyo district, agricultural sub-stations for multiplication and demonstration of improved crop varieties have been established at six centres with the aid of Native Council funds, and thus co-operatively. The present work is with maize, beans and millet.

24. In the Dar es Salaam district, a scheme designed for profitable vegetable growing by natives has been organised and initiated at Ruvu, on the Central Railway, with the object of improving the vegetable supply for the European population, especially at Dar es Salaam. This is, for the present, under the charge of the Head Gardener, Botanic Gardens, Dar es Salaam, for instruction and supervision.

Tabora Province.

25. This Province is the pioneer of what is coming to be known as the Native Council Farm—that is, a farm supported entirely by native funds and labour, for the purposes of crop trials, nursery propagation, seed multiplication and demonstration, for the benefit of the natives within the Council's area of authority. Two of these farms, one each in the Shinyanga and Nzega districts, have been established, the former having been the originating one and, under the zealous care and guidance of the District Agricultural Officer (Mr. A. S. Richardson), having proved of the greatest usefulness. One hundred and fifty acres are under cultivation at each of these farms, the following being the principal crops: cotton, beans, maize, millets and oil seeds. Large quantities of seeds have been distributed by the Native Councils from these farms to the local cultivators and to native schools, the latter for the school gardens used in agricultural tuition under the guidance of the District Agricultural Officer. Three of these school gardens serve, in addition to the purpose mentioned, for demonstration and for multiplication of seed destined for growing on the farms of the pupils' parents.

26. Two centres for training in ploughing exist in this Province, one each in the Shinyanga and Nzega districts. The former was begun by the Department in 1924, the latter in 1925. The system of training, which includes the "breaking-in" of oxen and instruction in their handling and care as well as in ploughing, is one of central tuition in the first stage, under European Ploughing Instructors, of whom two have been stationed in the Province, and later of instruction on the cultivators' farms, by native instructors specially selected and trained for the purpose. The ploughs were purchased by the Government and re-sold to the natives on easy terms of repayment. Over two hundred ploughs are now in use, and the area cultivated by this means in 1926 exceeded 2,500 acres.

27. Fourteen additional agricultural sub-stations in the form of the seed-farms above described, though on a smaller scale, are projected for the next season.

28. The Shinyanga District has shared in the introduction of fodder trees and crops to supplement the native grazing. Algaroba trees have been planted, and Egyptian clover (berseem) is under trial. Additional kinds are to be supplied.

29. The sleeping sickness area in the south-western part of the Province, in which the natives have been concentrated for the purpose of protection, is receiving similar attention for improving and increasing its agriculture, as is described for Kigoma Province under paragraph 41.

Mwanza Province.

30. An agricultural sub-station has been established in the Musoma District, which, in addition to its ordinary functions, includes training in ploughing. Three further sub-stations are projected for this Province in 1927. A European ploughing instructor is stationed in the Province to assist the District Agricultural Officer.

31. Ploughing began in this Province in 1925. The system of training and the method of providing ploughs has been the same as described for Tabora Province. Thirty ploughs are in use and the area under the plough is 560 acres.

32. The Kijima Mission, at Nera, has been assisted, by the provision of ploughs, training of its instructors and by advice, in its agricultural educational work recently initiated as a result of the similar successful work described above.

Bukoba Province.

33. Cotton-growing has been extended to remoter areas, notably Biharamulo and Kagera, in which the conditions are promising, and it is expected that this will increase rapidly as the result of the pioneer ginnery which the British Cotton Growing Association has agreed to erect.

34. Legislation is in train for the improvement, by grading, in the quality of the important coffee exports (approaching 5,000 tons annually) of the Bukoba District. The coffee production is, as yet, almost entirely in the hands of the natives. As a result of a survey by the Entomologist made during the year, it has been found necessary to enforce, through the local native administrations, regulations for clean cultivation. Encouragement is being given to the planting of robusta coffee rather than Arabian, and to the replacement of the latter by the former. The growing of robusta coffee has been extended to the Bugufi area.

35. Agricultural sub-stations are to be opened up in various parts of this Province. For the present, school gardens alone serve this purpose.

Lindi Province.

36. In this Province the change to the new system of Native Council administration has not sufficiently advanced to provide as yet sub-stations from native funds, and advantage is taken chiefly of the existence of School and Mission gardens for multiplication and demonstration work with introduced varieties of crops, of which the principal are maize and beans. In addition, leading natives are co-operating in similar work on their own farms. As yet this work has not been undertaken on an important scale ; it is preferred to await the establishment of the Native Councils, and, in co-operation with the Provincial Commissioner, institute the Tabora plan on a scale commensurate with the needs of this important Province.

Kigoma Province.

37. This Province embraces large areas of latent productivity, of which the chief are the Kasulu Hills and the Fipa Plateau with its lake littoral. Special attention has been given to the former during the year as a result of an agricultural survey made in 1925. An Agricultural Overseer has been stationed in the area pending the provision of a District Agricultural Officer. Seven nurseries of robusta coffee have been established at leading native centres, and are being cared for by the co-operative labour of the local natives, supervised by the overseer. Improved food crops for local consumption and sale have been introduced ; these are potatoes and soy-beans ; ginger is being propagated elsewhere for distribution in this area. The conditions are favourable for agriculture, though cattle-rearing is the main occupation of the people. Until recently food crops have not been grown beyond the annual needs of the people, but the efforts of the Provincial Commissioner and the District Officer are bringing about a realisation of the cash value of producing a surplus on the individual farm. The people have good agricultural practices, such as deep cultivation and manuring, and the normal rainfall is more than sufficient to produce good crops. Numerous local markets exist, established by the natives themselves, as well as Government markets on the railway.

38. An agricultural survey was made by the Director during the year of the Fipa Plateau and the lake littoral which runs below it on the south-eastern shore of Lake Tanganyika. The Plateau is to receive the joint attention of this and the Veterinary Department for the improvement of its animal and crop industries. This undulating plain lies at an altitude of from 5,000 to 7,000 feet, and may be described as semi-arid and adapted particularly to animal husbandry. Suitable fodder crops and trees are to be introduced as well as improved annual food crops, of early maturity, similar to those for the Central Province. Wheat particularly, already grown, is to receive attention, as well as oil seeds (among which groundnuts are now cultivated) and leguminous food crops.

39. The Lake-coast has a more favourable rainfall, though not sufficient for coffee as a rain crop. Irrigation is practised from perennial streams, and experimental robusta coffee cultivation is being undertaken, under irrigation. Similar improvement of annual food crops and oil seeds as is described for the Plateau is to be taken in hand.

40. The Plateau is judged to be suitable for non-native animal product industries, and the Lake-coast for non-native sisal production.

41. Assistance is being given to the Medical Department in the sleeping sickness concentrations in the Rukwa Plain by the provision of cotton seed (as a cash crop) to which these areas are judged to be suited, as yet as a crop for demonstration and instruction, pending the hoped-for erection of a pioneer ginnery. For the next season supplies of seed of leguminous food crops (those, particularly, of early maturity) and of maize are to be provided, and trained native instructors will be sent for supervision and teaching.

42. This area (the Plateau and Lake-coast) is as yet without the District Agricultural Officer intended to be stationed in it, but it is hoped to be able shortly to provide one. In the meantime the recommendations made, with the initial necessary work, are being taken in hand by the Provincial Commissioner and his staff.

Iringa Province.

43. No European agricultural staff has been provided for this Province as yet, and, consequently, since cotton growing was terminated owing to low prices and distance from market, there has been no organisation by the Department of the improvement of native agriculture. Non-native planters have, on request, been assisted with the acquisition of good seed, of tobacco, maize and potatoes. Assistance has been given to the Tukuyu coffee planters in procuring from the Nyasaland Government the right of export of coffee through that country without severe restrictions, a right largely granted as a result of the Department's strict enforcement of its regulations for plant and seed importation.

Mahenge Province.

44. The condition in regard to staff and cotton growing described under Iringa Province has applied as well to this. Recently, however, the establishment of robusta coffee nurseries has been taken in hand by the Provincial Commissioner and his staff from seed supplied to the Songea District by the Department. In the same district, work is projected for the improvement and expansion of the native tobacco industry. Among the numerous crops to which the conditions of this area are suited, it has been necessary to select these two high-priced products for exclusive attention at present in view of the lack of cheap transport facilities. A District Agricultural Officer is to be provided for the area, and he will be sent to make a close study of the native tobacco-growing industry in Nyasaland.

45. In concluding the above account of the Department's field work for the improvement and extension of agriculture in the Territory, a statement may now be given of the organisation aimed at for simplifying and, at the same time, decentralising and spreading the work in respect of native cultivation. The new system of Native Council administration has revealed opportunities of ready agricultural organisation and standardisation such as are rarely possessed in other countries. The Government experiment station is the primary link in this organisation (though it may be said that this will naturally not be confined to the advancement of native agriculture alone). The station will be the trial ground of a large region possessing the same general climatic conditions and thus, broadly, the same principal agricultural products. Three of these stations are in existence and others will follow until each important region is thus provided. From these, results and improved seeds will flow to large, centrally situated farms worked, in co-operation with the Department and under its guidance, by the local Native Council representing several thousands of natives. At the same time, this serves to localise still further the work of testing methods and varieties for adaptability while multiplying the seeds. Seed will be issued from these farms to smaller seed-farms situated at the headquarters of each member of the Native Council (composed of local chiefs), and new proved methods will come into operation there. These chiefs' farms will be the main points of demonstration of proved varieties and methods, and will be the ultimate foci for multiplication. The individual native cultivator will receive his seed from these and will be persuaded, by visible proof of superiority, to adopt the new methods. Nothing will be attempted which is not within his means. Not all cultivators will receive their seed at once, and, indeed, in some cases it may be found desirable and possible still further to decentralise

multiplication before the seed reaches the individual cultivator by establishing seed-farms at the villages or among the separate communities falling in the chief's territory. The agricultural staff will guide this progressive extension, and an important part of its duties will be to ensure the maintenance of the purity of the seed by the elimination, at each successive stage, of old local seed of the crop which is being replaced by the new variety.

46. For the improvement of cotton in the North-western Circle (Mwanza, Tabora and Bukoba Provinces), it has now been possible to eliminate completely the old seed and replace it by the stocks of seed multiplied from the Uganda importation referred to in paragraph 7 of the last Annual Report. The quantity of seed thus supplied and sown for the 1927 crop reached 675 tons. The improvement of seed that is taking place in the Rufiji district, following the selections of the Cotton Specialist formerly appointed to this Territory by the Empire Cotton Growing Corporation, has received reference in paragraph 20. Notwithstanding the necessity of abandoning the originally multiplied most promising strain—a contingency that was provided against, at the suggestion of the Cotton Specialist, by maintaining the propagation and purity of the remaining promising selections—the work is being pursued : one of these remaining strains, Mp 9/2, has shown the most promising permanent characteristics in the last two years, and should the report on the quality of its lint, awaited from the Empire Cotton Growing Corporation, be favourable, the ready means of multiplication that exist will be used rapidly and fully.

47. The control of the quality of cotton seed for the native crop which the Department is able to exercise through its legislative authority to ensure the issue by ginneries of seed of the first quality cotton of the earliest pickings has resulted in the maintenance of the quality of the lint reaching Liverpool, as shown by brokers' reports made available by courtesy of ginning firms in the country, and by reports on examination by the Imperial Institute and the British Cotton Research Association (*see* paragraph 54).

48. The general free distribution of seed to natives is now more strictly controlled under a system in which definite information as to requirements is obtained. While this is partly the reason for the decrease in 1926 and 1927, as compared with 1925, that for 1927, as compared with the previous year, is attributed mainly to the fall in prices in 1926, coupled with the low yields resulting from a poor growing season. The distributions in the last few years are shown in the following tables :—

Region.	1923.	1924.	1925.	1926.	1927.
	Tons.	Tons.	Tons.	Tons.	Tons.
Arusha	2¾	1	1½	2	—
Moshi	3¼	8	11¼	5½	4¼
Dar es Salaam	4	13	25	29	27
Bagamoyo	25	34	37	48	44
Morogoro and Kilosa	84	208	199	128	84
Rufiji...	70	120	164	132	41
Tabora	10	68	200	160	113½
Mwanza	140	338	447	455	545
Tanga	½	2	8	4¼	—
Usambara	¾	2	½	½	—
Pangani and Handeni	3	8	50	47	33
Kilwa	20	60	81	80	29
Lindi	113	160	340	208	95
Iringa	—	—	1¼	—	—
Rungwe	—	—	5	—	—
Mahenge	3	5	22¾	3	—
Bukoba	2	20	1	65½	25
Total	481¼	1,047	1,594¼	1,367¾	1,040¾

49. The plantings of cotton seed by non-natives in 1927 are reported to be lower throughout the Territory than those of the previous year by approximately one-third. The figures for 1925 and 1926 were 442 tons and 411 tons respectively.

50. The recovery of the non-native agricultural industries from war-time neglect and injury has been described in previous reports. Fresh plantings of coffee and sisal continue, and much activity is being given to the latter owing to the good prices that ruled until towards the end of the year. The Iringa district has become a favoured centre for non-native enterprise in planting, and promises to possess an important tobacco industry. Further south, in the Rungwe district, the number of settlers has increased, and there is promise of a coffee industry. At the end of 1926 ex-enemy estates had been disposed of to the extent of 1,127,850 acres, consisting chiefly of developed and partially developed properties. In addition to these sales, the Government has disposed of land on long lease to the extent of 97,000 acres.

51. The statistics of export given later (paragraph 114) show that progress in the premier agricultural industry of the Territory, sisal hemp, has made a considerable advance during the year, and the recovery to the pre-war level has been very much more than achieved. This product is now approaching the one million pound mark in value. Coffee has taken second place to sisal, with a value of approximately one-half million pounds (of which 63 per cent. in 1926 was from the almost purely native industry in Bukoba, as compared with 67 per cent. in 1925), and has come up from third place in 1925 and fourth in 1924. Moshi, Arusha and Usambara districts provide all except a few hundredweight of the exports other than from Bukoba, and of these 95 per cent. is non-native production of a high quality, particularly that from the Kilimanjaro and Meru regions.

52. The only other mainly non-native production, that of copra, in the hands largely of Arabs and Indians, has shown a further slight decrease in export. Its quality has continued to be inferior, except on the few European estates that exist. Increasing amounts are being used locally for the manufacture of soap. The non-native production of cotton which, in 1925, amounted to 25 per cent. of the whole, was 32 per cent. in 1926. The activity in rubber exports owing to the high prices in 1925 was hardly maintained in 1926.

53. Of the principal agricultural exports of the Territory in 1926, the following are the native and non-native shares :

——	Non-native.	Native.
	£	£
Sisal	911,293	—
Coffee	171,015	324,184
Cotton	106,884	320,550
Groundnuts	—	254,903
Copra	130,228*	22,000*
Hides and skins	—	164,435
Grain	7,365*	85,000*
Simsim	—	65,585
Beeswax	—	48,179
Total	1,326,785	1,284,836

* Estimated.

This does not, however, represent the true proportion of the respective productions in the Territory, for the food crops and other products locally consumed are almost entirely produced by natives.

54. *Improvement of the Quality of Cotton.*—Reference has already been made (paragraph 46) to the work in connection with the former Cotton Specialist's selections at the Mpanganya Station and to the continuation of this work by the Department based on reports on the quality of these received from the Empire Cotton Growing Corporation. A check on the quality of the cotton in the remaining cotton regions of the Territory is made each year by securing reports on samples sent for the purpose to the Imperial Institute and the British Cotton Research Association (through the Empire Cotton Growing Corporation). The following is a synopsis of these reports in 1926 :—

District.	No. of Samples.	Lint.		Fibre.		Commercial. Valuation.	Remarks.	
		Per cent.	Weight in gms. per 100 Seeds.	Strength.	Length (in inches).		Lint.	General.
Mwanza (Mainland) ...	3	31·5 to 32·0	3·5 to 3·8	Good generally; weak in parts.	0·7 to 1·6	150 on to 200 on	Pale cream, soft and lustrous. Some immature fibre.	Similar in quality to samples sent in 1924.
Mwanza (Ukerewe) ...	3	31·0 to 32·0	3·5 to 3·6	Good, but some portions weak.	0·8 to 1·8	175 on to 225 on	Pale cream, soft and lustrous. Some immature fibre.	Three almost identical samples and similar to the 1924 crop. The length of staple is rather higher than the mainland Mwanza cotton.
Kilwa	1	30·0	3·6	Fairly good ...	0·8 to 1·3	180 on	Pale cream, soft and lustrous	Although its average length was somewhat less, the sample was more uniform than that examined from the 1924 crop.
Moshi	6	29·0 to 32·5	3·3 to 4·8	Variable... ...	0·6 to 1·6	100 off to 225 on	Soft, lustrous and cream coloured. One sample badly stained, the others only slightly.	Three samples were similar in strength and range of staple length. Two samples were approximately 3 per cent. lower in ginning and yield than the other Moshi samples, and both were inferior to samples presented in 1924. One sample (100 off) was poor, with a large proportion of short fibres.
Arusha (Mbulu) ...	1	32·0	5·0	Good	0·9 to 1·4	180 on	Soft, lustrous, cream coloured, slightly stained.	Very satisfactory quality.
Lindi (Nahinu) ...	4	29·0 to 31·5	3·9 to 4·4	Good	0·7 to 1·8	140 on to 175 on	Clean, soft, lustrous, cream coloured, slightly stained.	Good strength and quality and satisfactory appearance. Generally similar to samples submitted in 1924, but rather uniform in staple length.
Lindi (Tunduru)	3	30·0 to 31·0	3·1 to 4·1	Good	0·7 to 1·7	175 on to 200 on	Clean, soft, lustrous, cream coloured, almost free from stains.	Good strength and quality and satisfactory appearance.

Mikindani	1	31·0	3·7	Good	0·7 to 1·7	160 on	Soft, lustrous and pale cream coloured; very clean and free from stains. A small amount of immature fibre present.	Similar to sample previously examined, but free from stain.
Bagamoyo	2	31·0	4·1 to 4·2	Good	0·7 to 1·7	160 on to 200 on	Clean, soft, lustrous, cream coloured, almost free from stains.	Samples very similar, but one has a stronger fibre than the other.
Rufiji (Ordinary) ...	3	28·5 to 30·0	3·5 to 4·1	Good	0·7 to 1·7	150 on to 200 on	Clean, soft, lustrous, cream coloured, almost free from stains. A small amount of immature fibre present.	Staple length satisfactory and similar to 1924 crop.
Rufiji (Lowland) ...	2	—	—	Strong and full staple.	1⅛ to 1 3/16	300 on to 325 on	Clean and bright	—
Rufiji (Upland) ...	2	—	—	Silky, but rather soft.	1⅛ to 1 3/16	300 on to 350 on	Clean and bright	—
Shinyanga	3	30·0 to 31·0	3·8 to 4·2	Good	0·9 to 1·6	150 on to 200 on	Clean, soft, lustrous, cream coloured cotton, free from stain.	These samples are stronger than cotton examined from the 1924 crop.
Bukoba (Karagwe) ...	3	29·0 to 33·0	4·2 to 4·8	Fairly good ...	0·7 to 1·6	160 on to 175 on	Clean, soft, lustrous, cream coloured cotton, slightly stained in parts. A little immature fibre was present.	—
Bukoba (Misenye) ...	3	31·0	4·7 to 4·9	Fairly good ...	0·8 to 1·7	175 on to 225 on	Clean, soft, lustrous, pale cream colour.	The first picking contains more immature fibre than the others, and is consequently inferior to them in strength.
Morogoro (Turiani) ...	1	31·5	4·3	Good	0·6 to 1·7	125 on	Soft, lustrous, of pale cream colour, clean and free from stains. A small amount of immature fibre present.	Similar to sample examined in 1924.

55. *Agricultural Advice from Headquarters.*—A large proportion of the correspondence at Headquarters is concerned with the giving of advice in response to enquiries from settlers and prospective settlers, as well as in connection with matters that arise in the course of the field work of the staff of the Department. For the simplification and extension of this work the want of a separate agricultural journal produced in the Territory is felt. Publications by the Department were confined to contributions to the vernacular periodical *Mambo Leo* published by the Government for natives, and twenty-nine articles on agricultural and entomological subjects, as well as regular reports on the condition of crops in the different regions of the Territory, to the Dar es Salaam press.

MARKETING IMPROVEMENT AND EXTENSION.

56. Activity under this head continues to be confined almost exclusively to the cotton crop and to the assistance for organisation of grading and marketing given to the Kilimanjaro Native Planters' Association. As in 1925, the cotton market (as distinguished from cotton auction market) system was in operation in the Mwanza Province, and the Morogoro (with Kilosa) and Lindi areas. This open and continuously competitive system has now been shown to be well adapted and easy of application in areas of larger production, and will gradually be extended to other areas as production and competition in these increase. The auction market system, with daily deliveries, was continued as before for the areas of small production. As in past years, a summary of the marketing statistics is given for each area. The figures of value, representing actual cash received by the natives, are of interest as showing to what extent cotton contributes to their prosperity and purchasing power in these districts. The cash receipts were lower than in 1925, owing to the fall in prices that took place as a result of the heavy American crop. It is to be understood that in all these districts buying took place at licensed ginneries in addition to markets or auction markets.

57. The following table affords a comparison of the sales during the season in the different areas (weights are in kilogrammes of unginned cotton) :—

Area.	1st Quality.	2nd Quality.	3rd Quality.	Total.	Value.
	Kgms.	Kgms.	Kgms.	Kgms.	Shgs.
Morogoro and Kilosa	2,563,274	404,823	458,435	3,426,532	1,046,041
Lindi	413,533	43,358	50,722	507,633	139,875
Kilwa	81,108	45,946	37,203	164,257	42,796
Western Rufiji	172,917	46,123	138,240	357,280	61,597
Eastern Rufiji	30,726	22,798	27,094	80,618	20,246
Total for Rufiji ...	203,643	68,921	165,334	437,898	81,843
Dar es Salaam	42,246	7,869	4,532	54,647	22,556
Bagamoyo	226,493	21,714	17,850	266,057	75,380
Pangani and Handeni ...	130,586	20,776	10,622	161,984	40,389
Tabora Province	850,175	45,675	45,095	940,945	219,389
Mwanza Province	3,773,815	282,240	—	4,056,055	1,402,487
Moshi	53,518	10,366	13,292	77,176	21,593

58. *Morogoro and Kilosa Districts.*—The sales were effected entirely under the new cotton market system, at appointed centres, no auction being held. The adjoining district of Bagamoyo contributed to the sales, but the figures for this are not included under this area. The following figures indicate the progress in the area since 1922 :—

——	1922.	1923.	1924.	1925.	1926.
Weight in tons of unginned cotton ...	149	645	2,165	1,844	3,426
Value in £	3,170	22,918	63,797	48,137	52,120

The decrease in 1925 was due to an unusually dry growing season.

59. *Lindi.*—This area includes the districts formerly within the Lindi District :- Lindi, Mikindani, Masasi and Tunduru. In the two first the sales were under the

new cotton market system, in the others under the auction market system. The auction sales contributed 97,393 kgs. The total for the area in 1925 was 897,714 kgs., thus showing a decrease in 1926, owing chiefly to a poor growing season.

60. *Kilwa.*—In this district the auction markets were continued. Three centres for deliveries were appointed—at Kilwa, Kikanda ginnery and Kiswere. The 1925 total was 190,436 kgs., of a value of 89,469 shs.

61. *Rufiji.*—Auction markets were held at Mohoro and Kikale, in Eastern Rufiji, and Nyakisiku, in Western Rufiji. Elsewhere in this district deliveries were at ginneries. The figures from 1923 are given below for comparison (the figures are in tons) :—

	1923.	1924.	1925.	1926.
Western Rufiji	303	396	196	357
Eastern Rufiji	46	110	144	80
	349	506	340	437

62. *Dar es Salaam.*—Auction markets were held for deliveries at Ruvu and Kisiju, and purchases were also made at the Dar es Salaam ginnery. This district shows a decline from the 1924 production of 131,204 kgs., owing to the bad season.

63. *Bagamoyo.*—The crop in this district was mainly purchased by the Bagamoyo ginnery at Bagamoyo and Sadani, and at the markets in the Morogoro District. The 1924 total of 417,222 kgs. has not yet been recovered. The 1925 total was 181,006 kgs., the season having been an exceptionally dry one.

64. *Pangani and Handeni.*—Auction markets were held at Pangani, and deliveries of cotton from this district were also made at Sadani. In the Handeni District the cotton was bought by the local ginnery. In 1925 the total for the area was 300,056 kgs.

65. *Tabora Province.*—The purchases were made entirely by the ginneries in the Shinyanga District. Cotton was grown in the Kahama and Nzega districts following the removal of the quarantine measures ; the production, however, was chiefly in the Shinyanga District. In 1925 the Shinyanga District produced 203,419 kgs. and the remainder of the Province 34,805 kgs.

66. *Mwanza Province.*—Auction markets were held at one centre only, Musoma. Elsewhere, buying took place at cotton markets and ginneries. In accordance with an old-established custom, the cotton was bought in two qualities only. The total in 1924 for the Province was 2,592,899 kgs., and in 1925 5,040,329 kgs. The decrease in 1926 was due to a poorer season.

67. *Moshi.*—The cotton in this district was sold by auction and direct to ginneries. The 1924 total was 98,771 kgs., in 1925 42,996 kgs., the decline being due to the unusually severe drought.

68. The table below serves to show the range of prices at the leading sales centres during the year. The prices are in cents. of a shilling per kilogramme. By 1st quality is meant clean white cotton ; by 2nd quality, lightly stained or slightly dirty cotton ; by 3rd quality, all other merchantable cotton.

Centre.	1st Quality.		2nd Quality.		3rd Quality.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
Morogoro	42	22	32	10	21	6
Ngerengere	40	20	30	10	20	5
Kilosa	38	19	28	6	19	4
Dar es Salaam	40	29	30	19	20	13
Bagamoyo	39	24	26	13	10	7
Mohoro...	39	15	31	12	19	6
Kikale	25	12	20	9	12	6
Kilimani	28	15	18	10	12	6
Lindi	40	25	28	12	18	10
Mikindani	33	22	23	14	16	10
Masasi	25	20	15	12	12	10
Kilwa	39	21	29	11	19	10
Mwanza	50	41	—	—	15	12
Usagore (Shinyanga) ...	26	17	20	13	11	8
Pangani	35	21	25	11	17	11
Moshi	44	27	34	17	22	14

WORK IN AGRICULTURAL STATIONS.

69. The following paragraphs contain a brief account of the more important experiments conducted at the Department's various stations. A more normal season was experienced than in the unusually dry year of 1925.

Morogoro Agricultural Station.

70. The trials of previous years (partly without result in 1925 because of the abnormally low rainfall) were continued, and new experiments were designed to overcome the food shortage, which is an annual occurrence before the harvest. This new work included trials with early maturing varieties of sorghum, millets and legumes.

71. *Cotton Variety Trials.*—The results of five varieties out of ten are given :—

Variety.	Yield per Acre in lb. of Seed-Cotton.	
	1925.	1926.
King	546	311
Local seed (Uganda origin)	640	269
R.M. 68	—	209
Over-the-top	820	201
Webber 49	—	135

In no case was there more than five days' difference in the dates of maturity.

72. *Cotton : Time of Sowing Experiment.*—Sowings were made at weekly intervals from February 23rd to April 6th, instead of fortnightly as in the previous year. The results are shown in the following table, in which those for 1924 and 1925 are included for purposes of comparison in relation to the differences in the seasons :—

Date of Planting.	Rainfall during Month in Millimetres.				Comparative Yield.		
	Month.	1924.	1925.	1926.	1924.	1925.	1926.
February 23	February	261	118	3	100	100	83
March 2	,,	—	—	—	—	—	94
,, 9	March ...	153	43	186	82	85	100
,, 16	,, ...	—	—	—	—	—	91
,, 23	April ...	207	61	190	26	62	86
,, 30	,, ...	—	—	—	—	—	83
April 6	May ...	77	41	43	9	—	60

These results tend to demonstrate the soundness of the Department's policy in instruction for early preparation of the land and planting with the first rains.

73. *Cotton : Distance of Sowing Experiment.*—As in the preceding four years, all the plots were sown on the 22nd March, in rows 3 feet apart, the distances between the plants varying from 6 inches by intervals of 6 inches up to 30 inches. Owing to a more normal season, the results show a reversion to those obtained in 1922–24, and the comparative yield per acre ranged as follows :—

6 inches apart	100
12 ,, ,, ...	93
18 ,, ,, ...	78
24 ,, ,, ...	85
30 ,, ,, ...	84

It would appear that sowings further apart than 12 inches are affected more by the natural conditions of the soil than by the spacing of the plants. This experiment will be continued until it is possible to give the average results over eight years.

74. *Maize : Time of Sowing Experiment.*—April would appear to be the latest time for planting maize in Morogoro, and the best yields were given by the earliest plantings (2nd April).

75. *Leguminous Cover Crops.*—Trials made with *Tephrosia Hookeriana*, *T. purpurea* and *T. candida* did not show any superiority over the cowpea.

76. *Beans : Variety Trials.*—Experimentation with four types of beans gave the following results :—

Variety.	No. of Days to Maturity.	Comparative Yield.
Bush Lima	166	100
Tepary	82	22
S.A. Commercial Velvet	163	94
Phaseolus radiatus	126	41

These results are of interest, as the tepary bean, because of its earliness, would appear to be a useful supplementary crop for planting in the short rains, the object for which it was introduced for experimentation.

77. *Phaseolus radiatus* has a similar yielding power to the local gram (*P. Mungo*), and it is claimed for it that its hard skin renders it resistant to insect attack.

78. *Sorghum Variety Trials.*—The continuance of this work has resulted in the division of this crop into three types :—

(1) Suitable for export—hard skin.
(2) Heavy cropping—thin skin.
(3) Early maturing.

The question of finding suitable types of these three varieties has been the main object of the investigational work with sorghums, and while the general rule seems to be that the export grain does not produce such a heavy crop as the thin-skinned type, it matures earlier. Still earlier maturing types give a lower yield.

Singida Agricultural Station.

79. The Singida District experienced an abnormal season, the early rains being extremely late and irregular, with the result that the crops were subjected to long periods of drought at the most critical stages of growth, and when later in the season there was a regular precipitation the crops were flowering. The effect of the irregular rainfall was particularly noticeable on the slower-draining lands (" mbuga ") and this compelled the abandonment of the " wheat after rice " trials.

80. *Proso Millet : Distance of Sowing Experiment.*—These trials were carried out in duplicate plots with an early and a late planting. After germination each plot was divided, so that half contained one plant per hill and the rest two plants. The results were somewhat vitiated by the ravages of birds owing to the early maturity of the crop. Both early and late plantings agreed that one plant per hill gives a better yield than two plants. The maturity for early planting was 81 days, for late planting 73 days. The following table shows that the yields for dry farming conditions are satisfactory :—

Spacing.	Planted 17.11.26. Yield per Acre.	Planted 12.2.27. Yield per Acre.
	Kgs.	Kgs.
2 ft. by thin continuous	125	202
2 ft. by 3 in.	108	204
,, *	100	147
2 ft. by 4 in.	81	252
,, *	46	188
2 ft. by 6 in.	89	255
,, *	75	194

* Indicates two plants per hill. Other spacings, one plant only.

81. *Small Grains : Variety Trials.*—This experiment showed that the control (the local variety, " Uwele ") gave a higher yield than the other varieties tried. The earlier maturing varieties, which suffered badly from bird attack, show promise as being resistant to drought.

Variety.	Spacing.	Days to Maturity.	Yield per Acre.
			Kgs.
Búlrush millet. Local variety, " Uwele "	2 ft. by 18 in.	155	182
Proso millet (Morogoro)	2 ft. by 4 in.	81	20
Proso millet (India)	,,	81	29
Panicum frumentaceum	,,	161	102

82. *Tepary Beans : Distance of Sowing Experiment.*—As in the trials with proso millet, duplicate plots of early and late sowings were planted, and it will be seen that the yield is similar when the distance between the plants does not exceed 18 inches, after which a decline is noticed. The later plantings received a kindlier rainfall, and avoided to a certain degree the attacks of insects to which the earlier sowings were subjected. The maturity was 81 days for early planting and 75 days for late.

Spacing.	Planted 19.11.26. Yield per Acre.	Planted 5.2.27. Yield per Acre.
	Kgs.	Kgs.
2 ft. by 2 ft.	23	16·5
2 ft. by 18 in.	32	24·5
2 ft. by 12 in.	39	24

83. *Trials with Leguminous Crops.*—Owing to variation in the quality of the soils, the results from this experiment were indefinite, but they indicate that seed introduced from Turiani produces a heavier yield on the lighter soils, while Morogoro seed is more successful on the richer soils.

84. *Maize : Variety Trials.*—Trials were made with White Cango and Potchefstroom Pearl. White Cango proved more successful on the lighter soils.

Variety.	Type of Soil.	Days to Maturity.	Yield per Acre.
			Kgs.
White Cango	Sandy	119	687
Potchefstroom Pearl	,,	124	638
White Cango	Medium	119	901
Potchefstroom Pearl	,,	128	775
,, ,, ...	Slow-drying heavy	137	890

Mpanganya Agricultural Station.

85. The following paragraphs have been extracted from the report of the District Agricultural Officer (Mr. A. J. Wakefield).

86. The season has been noteworthy in that there has been a definite departure into experimentation with food crops, while the cotton experimentation has been extended. Experiments were also carried out for the first time on that portion of the station termed section B, which is representative of the lowland conditions of the Rufiji District, section A being representative of the uplands of the riverine soils. These were described in the Report for the year 1925–26.

87. *Cotton : Time of Sowing Experiment, Section A.*—Duplicate 1–40 acre plots were sown at fortnightly intervals, beginning with 8th January, 1926, and ending with 28th May, 1926. It may be considered that the beginning is too early and the last plot sown too late, but it is desired to obtain a lead to the exact optimum time of sowing, which is not positively indicated where the first-sown plot gives the greatest yield. Observations were made as to the number of bolls formed per plant, boll shedding, etc. The results and records are given below in tabular form :—

Plot No.	Time of Sowing.	Monthly Rainfall in Millimetres.	No. of Days to First Opening of Bolls.	Percentage Stand.	Comparative Yield.
1 ...	January 8 ...	January 111·8 ...	151	47·9	82·8 (III)
2 ...	,, 22 ...	February 51·9 ...	144	38·0	96·6 (II)
3 ...	February 5 ...	March 61·1 ...	128	81·4	100·0 (I)
4 ...	,, 19 ...	April 307·4 ...	121	50·4	47·0 (VI)
5 ...	March 5 ...	May 30·6 ...	—	Nil	Nil
6 ...	,, 19 ...	June Nil ...	123	57·5	55·9 (V)
7 ...	April 2 ...	July Nil ...	125	54·5	37·5 (VII)
8 ...	,, 16 ...	August 14·1 ...	128	78·4	71·0 (IV)
9 ...	,, 30 ...	September 33·5 ...	128	47·7	31·6 (VIII)
10 ...	May 14 ...	October 5·4 ...	127	53·0	25·5 (IX)
11 ...	,, 28 ...	November 101·9 ...	—	Nil	Nil

In the above table the percentage stand is in the proportion of plants reaching maturity to the spacings sown.

88. There is a direct relation between the percentage of stands and the yields of each plot, and this is most apparent with the sowings from 19th February onwards. The seeming contradiction of this in plots 1 and 2 may be explained by the fact that their early sowing permitted the production of an extensive root system which enabled the plant later to withstand drought periods, and so balanced the handicap of poor stand. The rains were intermittent, and the bulk of the precipitation fell in April, which renders more conspicuous the superiority of plots 1 to 3. It is evident that the critical time of the life of the cotton plant is the three or four days immediately succeeding germination ; this is shown more especially by plots 4 and 5, which, although receiving sufficient rain to produce germination, were subjected to a drought period of some days immediately after which killed the seedlings, in some cases before they had emerged above the ground level.

89. The optimum times of sowing over the last five years are correlated below :—

Year.	Optimum Time of Sowing.	Yield per Acre of Seed-Cotton.
		Lb.
1922	March 5	—
1923	,, 1	—
1924	,, 24	—
1925	,, 3	1,136
1926	February 5	812

90. *Cotton : Time of Sowing Experiment, Section B.*—Duplicate 1–40 acre plots were sown at fortnightly intervals on the same dates as in the similar experiment carried out in section A. The soil of the lowlands section is a deep and uniform silt verging on the type popularly termed a " black cotton soil." The physical, chemical and organic nature of such soils is more complicated than in the case of the lighter and more friable soils of the uplands, as represented by section A, and during the experimentation with cotton a reflection of the intricate soil reactions was seen in their effects on the growth and development of the cotton plant. The observations

recorded and their tabular representation have been carried out in identical manner, as with the time of sowing experiment of section A. The results are given in the following table :—

Plot No.	Time of Sowing.	Monthly Rainfall in Millimetres.	No. of Days to First Opening of Bolls.	Percentage Stand.	Comparative Yield.
1 ...	January 8 ...	January 111·8 ...	82	93·3	100·0 (I)
2 ...	,, 22 ...	February 51·9 ...	122	43·0	49·4 (VII)
3 ...	February 5 ...	March 61·1 ...	124	93·0	63·4 (IV)
4 ...	,, 19 ...	April 307·4 ...	120	57·1	67·3 (II)
5 ...	March 5 ...	May 30·6 ...	114	40·0	42·2 (IX)
6 ...	,, 19 ...	June Nil ...	113	100·0	67·0 (III)
7 ...	April 2 ...	July Nil ...	108	100·0	62·7 (V)
8 ...	,, 16 ...	August 14·1 ...	108	100·0	61·1 (VI)
9 ...	,, 30 ...	September 33·5 ...	107	100·0	43·3 (VIII)
10 ...	May 14 ...	October 5·4 ...	—	Nil	Nil
11 ...	,, 28 ...	November 101·9 ...	—	Nil	Nil

91. The superiority of plot 1 over all others is most pronounced ; the remaining plots may be grouped according to their yields as follows : A—plots 3, 4, 6, 7 and 8 ; B—plots 2, 5 and 9. Plots 2 and 5 have been reduced to the lower level of the B group by a small percentage stand due to unfavourable rains at sowing, while with plot 9 it may be safely assumed that the low yield is due to the lateness of planting alone.

92. There appears to be some levelling influence which is peculiar to the lowlands soils. After rain, especially after heavy rain, the plants of all plots became sickly looking, and the foliage yellowish in colour. It is obviously a matter of rainfall, and its effect on the properties of the soil appears to result in nitrogen starvation. The soil is of high moisture content, and movements of soil water are slow and negligible over a period of several days ; the land rapidly becomes water-logged, and anaerobic soil conditions then exist which last for some considerable time, resulting in denitrification. These conditions are further intensified by the formation of colloids in the silt soil, which becomes tenacious, and requires especial care that the continued formation is not aggravated by untimely cultivation.

93. A rainfall of 170 millimetres on the 6th April, together with heavy rains towards the end of that month, brought about the above conditions, which were not corrected by the natural sun-drying of the soil until some two months later. No bolls were formed in any plot from the end of April until the end of June. The incidence of boll pests is indicative of this. The rainfall of 81 millimetres which fell about the time of sowing of plot 1 was not sufficient to produce anaerobic conditions, the soil being comparatively dry, and able to absorb moisture without waterlogging. It was not until the first crop of bolls had matured that the soil became incapable of absorbing more moisture without detriment to plant growth. The probable further ill-effects of denitrification are seen in the greater boll shedding which occurred over the first sown plots of this series.

94. *Cotton : Distance of Sowing Experiment.*—A series of 17 duplicated plots of different spacings were sown at the beginning of February in sections A and B, a repetition series being sown in section B in mid-April. The three series are referred to in the following tables as Series A, B, and B/2 :—

Plot No.	Spacing.	No. of Plants per Acre.	Comparative Yields.		
			Series A.	Series B.	Series B/2.
1 ...	3 ft. by 6 in.	32,500	57·9	97·7	70·4
2 ...	3 ft. by 9 in.	21,500	49·8	90·7	64·2
3 ...	3 ft. by 12 in.	16,500	54·5	89·9	66·0
4 ...	3 ft. by 15 in.	13,000	71·2	91·8	67·0
5 ...	3 ft. by 18 in.	9,500	85·9	88·1	70·4
6 ...	3 ft. by 24 in.	8,000	100·0	67·7	74·5
7 ...	3 ft. by 36 in.	5,000	72·4	59·4	43·6
8 ...	4 ft. by 6 in.	25,500	57·8	97·1	87·8

Plot No.	Spacing.	No. of Plants per Acre.	Comparative Yields.		
			Series A.	Series B.	Series B/2.
9 ...	4 ft. by 12 in.	12,500	61·4	100·0	81·0
10 ...	4 ft. by 18 in.	8,500	72·7	98·7	64·1
11 ...	4 ft. by 24 in.	6,500	74·1	88·1	70·4
12 ...	4 ft. by 36 in.	4,000	83·5	60·5	48·9
13 ...	4 ft. by 48 in.	3,000	32·2	55·9	39·9
14 ...	2⅓ ft. by 6 in.	38,500	36·1	97·7	99·4
15 ...	2½ ft. by 9 in.	26,500	39·9	94·2	93·3
16 ...	2½ ft. by 12 in. ...	21,000	39·9	90·3	100·0
17 ...	2½ ft. by 24 in. ...	10,500	41·3	89·7	91·4

95. Correlation of results with previous years, section A only :—

1926 .. .. 3 ft. by 24 in. optimum spacing.
1925 .. .. 3 ft. by 18 in. ,, ,,
1924 .. .. 3 ft. by 18 in. ,, ,,

96. *Cotton Variety Trials.*—The cotton variety trials included the eight Mp. (Mpanganya) selections, as well as eleven introduced varieties, with a control of ordinary district cotton. These were sown in section A in consecutive triple lines, the centre line being taken to obtain the average yield per plant. The variety names, yields per plant, size of bolls and dates of opening of bolls are given in the following table :—

Plot No.	Variety.	Yield per Plant.	Comparative Size of Bolls.	Date of Opening of Bolls.
		Ozs.		
1 ...	Webber 49	1·80 (XI)	19·188	June 25
2 ...	Webber	1·80 (XI)	18·241	,, 25
3 ...	Early King	1·20 (XIX)	16·806	,, 15
4 ...	R.M. 53	1·57 (XVI)	17·672	,, 30
5 ...	R.M. 68...	1·65 (XV)	19·980	,, 15
6 ...	R.M. 90...	1·76 (XIII)	17·102	,, 15
7 ...	Improved Bancroft	1·52 (XVIII) ...	16·320	,, 18
8 ...	Griffin	1·91 (IX)	16·176	July 1
9 ...	Uganda	1·84 (X)	14·080	,, 5
10 ...	Watts Long Staple	1·56 (XVII) ...	17·870	June 30
11 ...	Mp. 19	1·75 (XIV)	17·395	,, 28
12 ...	Mp. 8/1	1·93 (VIII)	13·143	July 1
13 ...	Mp. 9/2	3·18 (I)	12·168	June 29
14 ...	Mp. 13/3	2·50 (III)	13·340	July 2
15 ...	Mp. 18	2·47 (IV)	13·976	June 25
16 ...	Mp. 9 or J	2·15 (VI)	13·650	,, 15
17 ...	Mp. 4/2	2·52 (II)	14·178	,, 15
18 ...	Mp. 12 or M	2·40 (V)	10·116	,, 28
19 ...	Ord. district	2·00 (VII)	12·648	,, 15
20 ...	N.17 Uganda	0·84	—	—
21 ...	Ord. district	1·64	—	—

Varieties Nos. 1 to 19 inclusive were sown on the 27th March, 1926, while plots Nos. 20 and 21 were sown on the 19th April, 1926. The outstanding varieties are the selection Mp. 9/2 of the district cotton type, Griffin and Uganda of the introduced varieties. A marked feature of the plots was the tall rank growth of the ordinary district cotton and its Mp. selections, as compared to the pleasing compact dwarf growth of all the imported varieties, with the exception of the Uganda variety, which is intermediate between the two extremes. The size of the bolls of the different varieties, as measured by the average sectional length in centimetres multiplied by the average sectional breadth, was in inverse ratio to the size of the plants and the number of bolls per plant.

97. *Comparison of the Mp. Selections with Ordinary District Cotton.*—The comparison of the Mp. selections referred to above, taken over from the Cotton Specialist of the Empire Cotton Growing Corporation, were continued, 1–40 acre plots of each selection being grown on both sections of the station. The season was

one of intermittent rainfall, and provided a searching test of the vigour of the young cotton plant; hence the results are given below both as plot yields and the average yields per plant, together with the single plant yields of the cotton variety trials.

Selection No.	Variety Trials.	Comparisons (Section A).		Comparisons (Section B).	
	Yield per Plant.	Plot Yield.	Yield per Plant.	Yield per Plot.	Yield per Plant.
	Ozs.	Kgs.	Kgs.	Kgs.	Kgs.
Mp. 19 ...	1·75 (IX) ...	6·50 (II) ...	0·0319 (II) ...	—	—
Mp. 8/1 ...	1·93 (VIII) ...	1·50 (VIII) ...	0·0214 (V) ...	2·25 (VII) ...	0·0775 (IV)
Mp. 9/2 ...	3·18 (I) ...	8·00 (I) ...	0·0727 (I) ...	24·50 (I) ...	0·1842 (I)
Mp. 13/3 ...	2·50 (III) ...	2·25 (VII) ...	0·0132 (VII) ...	14·00 (IV) ...	0·1052 (II)
Mp. 18 ...	2·47 (IV) ...	4·75 (IV) ...	0·0231 (III) ...	—	—
Mp. 4/2 ...	2·52 (II) ...	3·75 (V) ...	0·0133 (VI) ...	14·75 (III) ...	0·0444 (V)
Mp. 9 or J ...	2·15 (VI) ...	3·00 (VI) ...	0·0101 (VIII) ...	6·50 (VI) ...	0·0198 (VII)
Mp. 12 or M...	2·40 (V) ...	5·00 (III) ...	0·0217 (IV) ...	20·00 (II) ...	0·0913 (III)
Ord. District	2·00 (VII) ...	1·50 (VIII) ...	0·0052 (IX) ...	10·00 (V) ...	0·0305 (VI)

By far the greatest yield both per plot and per single plant over the whole trials and comparisons was given by selection Mp. 9/2, which was also an outstanding selection in 1925. Its performance leaves no doubt as to its great superiority in yielding power, and should the spinning tests be favourable, this selection has first claim to mass multiplication.

98. *Ratooning of Cotton Experiment.*—The plots of experimental cotton of 1925 were cut back to within 2 to 4 inches of ground level at the time such cotton would have been normally uprooted and burnt. The stumps quickly sprouted, and one month later the plants were flowering, a first picking being made in March, which, while being clean, was of short staple and very weak. Up to January there were no insect pests, the conditions being dry and adverse to insect life. After the rains in March and April, cotton stainers and boll-worms appeared in ever-increasing numbers, the seed-cotton produced from the end of March onwards being badly stained and discoloured. A sample of the produce of this ratooned cotton was submitted to a commercial cotton planter and ginner, who stated that such cotton would be valueless to him. The percentage stand of the ratooned cotton was but 13·5 per cent. of the full spacings sown in 1925. The results and recorded observations are given in the following tables :—

Year of Crop.	Actual Yield per Acre.	Comparative Yields.
	Kgs.	Kgs.
A. Cotton ratooned, cropped 1926	197·7	45·6
Ordinary cotton, 1926	432·9	100·0

Incidence of insect pests : –

Month.	No. of Dysdercus Insects per Plant.		Percentage of Bolls containing Worm.	
	Ratooned Cotton.	Cotton Sown February, 1926.	Ratooned Cotton.	Cotton Sown February, 1926.
February	Nil	Nil	Nil	Nil
March...	Nil	Nil	Nil	Nil
April	25·0	4·3	4	Nil
May	9·5	3·2	98	38
June	12·7	4·5	88	60
July	6·0	1·7	67	70
August	8·0	5·2	73	23
September	29·0	12·7	70	37

99. *Topping of Cotton Experiment.*—This experiment confirms the findings of previous years that there is no superiority in topping, as is shown in the following table :—

Height of plant at topping :—	Yield. Kgs.
Control	7·00
Topped at 1 ft.	7·00
Topped at 2 ft.	6·75
Topped at 3 ft.	7·50

100. *Cotton with Rice Experiment.*—It is a fairly common custom amongst the native farmers of the lowlands of the Rufiji Valley to inter-sow cotton with the rice crop when the latter is approaching maturity or is mature. Experimentation on this was carried out on section B, which is typical of the drier lowlands of the district. An area of one acre was sown with Marula rice at spacings of 18 in. by 9 in. on the 18th January : this was divided into four plots, one of which was not sown with cotton as a control, the others being inter-sown with cotton at intervals of one month. The results are given in the table below :—

Date when Cotton Inter-sown.	Yield of Rice.		Yield of Seed-Cotton.		Gross Cash Return per Acre.
	Per Plot.	Per Acre.	Per Plot.	Per Acre.	
	Kgs.	Kgs.	Kgs.	Kgs.	Shs.
Control	173·0	745	—	—	149·13
February 18	27·5	118	72·0	310	109·49
March 18	137·0	590	54·5	235	163·36
April 18	132·0	569	1·0	4	114·65

The yield of cotton as a pure crop under similar soil conditions and sown in mid-February was 300 kgs. per acre. Where cotton is inter-sown on the 18th March there is an increase in gross cash return over the plot of rice alone. No native would plant at this early stage of the rice crop. The later planting of cotton failed to germinate. An important result of this experiment is that with the plots inter-sown with cotton in February and March, after the harvest of the rice crop, the cotton gave effective cover and at the end of the season the plots were clean of all weed growth, and little labour was required for the soil preparations for the second year's cropping.

101. Attention has been drawn to the denitrification which occurs in lowland rice soils, and the observations may be continued here as of added importance for the inter-sowing of cotton with rice. It is obvious that while the process of denitrification may occur throughout the surface and subsoils, the surface soil will (by sun and wind drying) first become suitable to the action of the nitrifying bacteria ; thus there is a tendency for the available nitrates to be confined in the first few inches of soil, which will induce the excessive formation of a superficial root system of the rice plant. By this, serious loss may ensue from cultivation, and the plant will be in a very weak condition to resist sudden drought periods, the root system being quite incapable of obtaining sufficient subsoil moisture. This is well indicated by the general failure of the rice crop during this season, even where the variety is suited to the soil conditions.

102. The control of the bacterial life of the lowland soils is thus of great importance. Irrigation and mechanical drainage are not yet practicable, and there are no natural agents of drainage and aeration. The remedy lies in the cotton crop with its long tap roots, which from actual observations may be $\frac{3}{4}$-in. in diameter at the ground level, and $\frac{1}{8}$-in. at 8 ft. below the surface of the soil. After the cotton has ben uprooted and burnt at the end of the season there is left in the soil a root which decays and the plastic subsoil retains the mould of the root, and a long deep drainage and aerating channel is formed, which may function over many years. Thus, where cotton is inter-sown with rice year after year a positive network of such channels will be formed which must have considerable drainage effect, and so tend to

produce those aerobic conditions necessary to nitrification, and hence normal plant development. So also should the depth of fertile soil increase, and with it the root system of the rice crop should extend more deeply, with consequent greater resistance of this crop to sudden droughts. The increased production of cotton over the rice lands of the lowlands may thus be considered of importance from the view of famine avoidance alone.

103. *Rice Variety Trials.*—Nineteen varieties of rice grown by natives in the Rufiji Valley were selected for inclusion in these trials, the object of the experimentation being to provide some reliable knowledge of the local types. This, continued over a number of years, should give some sound basis of improvement of the rice crop by selection and pure line breeding. No attempt is made at this stage to differentiate or observe the finer points of vegetative growth.

Name of Variety.	Yield per 100 Plants.	Yield per Acre.
	Lb.	Kgs.
1. Africa	11·00	1,000
2. Marula	11·25	964
3. Ngowe	10·75	896
4. Meno Meupe	12·25	1,180
5. Kilimali	8·25	824
6. Afa	Nil	Nil
7. Jegeremati	5·50	360
8. Kimoto	1·62	59
9. Faya	Nil	Nil
10. Afiri	7·62	576
11. Unyengwa	8·25	308
12. Mwanga	8·25	356
13. Kilowae	4·75	404
14. Mpemba	3·50	96
15. Kichawachawa	9·62	432
16. Hebu	1·62	57
17. Komomango	12·00	756
18. Almeri Mgeni	11·00	480
19. Bungala	Nil	Nil

All varieties were lined out at spacings of 18 in. by 9 in. Varieties Nos. 1 to 14 were sown on the 12th January, and harvested on the 15th June; Nos. 15 to 19 were sown on the 1st February, and harvested on the 15th June.

104. *Maize Variety Trials.*—The trials were instituted to determine a suitable variety for introduction into native agriculture to the complete exclusion of the inferior native types. The trials were carried out in section B, and were restricted to Hickory Horsetooth and Natal 8-Row, with native maize as a control. The plots were sown on the 22nd February, at spacings of 3 ft. by 18 in. The results are given in the following table:—

Variety.	No. of Days to Flowering.	No. of Days to Harvest.	Percentage Stand at Harvest.	Yield in Kgs.
Hickory Horse-tooth	43	138	48·3	113
Natal 8-Row	53	120	4·3	2
Native	53	128	12·3	20

It should be noted that the season was one of intermittent rainfall, resulting in conditions severely testing the resistance to drought of the maize plants.

105. *Sorghum Trials.*—The native sorghum millets are most subject to "smut," and seed of nine varieties resistant to this disease were received from the Entomologist for trial, with a view to introduction into native agriculture of the variety most suited to local conditions and requirements. The first sowing in early March failed

owing to drought, and re-sowing was made on the 30th March. The results are given in the following table :—

Plot No.	Name of Variety.	No. of Days from Sowing to Harvest.	Yield per Plant.	Flavour of Grain.	Flavour of Pith.
			Lb.		
1 ...	Darso	89	0·067	Bitter	Very dry and astringent.
2 ...	Darso	89	0·070	Mild	Very sweet.
3 ...	Dwarf Hegari	83	0·031	Excellent, mild...	Very sweet.
4 ...	Standard White Milo ...	—	—	—	—
5 ...	Dwarf Yellow Milo ...	91	0·010	Mild	Slightly sweet.
6 ...	Standard Yellow Milo...	97	0·030	Mild	Dry and astringent.
8 ...	Dwarf White	Nil	Nil	—	—
10 ...	Pink	89	0·037	Good, mild ...	Dry and astringent.
11 ...	Red	83	0·041	Good, mild ...	Slightly sweet.

Varieties Nos. 8, 10 and 11 have long, compact, heavily glumed heads, retentive of moisture ; the heads were full of mould, and of insects which ate the grain in the field. These varieties are definitely unsuitable. Varieties Nos. 1 and 2 have elongated heads, less compact than Nos. 8, 10 and 11 above. There is loss of grain in the field, but the resulting yields are high. Nos. 5 and 6 have round, open heads, but are heavily glumed and awned, and the spikelets of No. 6 are compact ; these are also subject to loss of grain by insects in the field, due to the cover given by the glumes and awns. Dwarf Hegari (3) has a short open head, most lightly glumed, and at maturity the inflorescence has a naked appearance, each seed standing out boldly ; there is no cover to insects, and the head rapidly dries after rain or dews. This variety has been most outstanding, and has been selected by natives as being the best of the trials, and one that is suited to their requirements. Its yield per plant is not great, but it is of slender growth with fine narrow leaves, which would permit of spacings 2 ft. by 1 ft., and so tend towards high yields of grain per unit area. Its period from sowing to harvest is 83 days, as compared to 140–180 days required for the native sorghums, and it is more drought resisting. This variety may well supplant maize as a more dependable short rain crop.

106. *Cover Crops.*—Bonavist Bean proved a most efficient cover crop, and at the same time gave 100 kgs. of grain per acre. It was sown in early January (at 3 ft. by 18 in.), the plant proved most drought resistant, and provided a most effective cover, smothering all weed growth and lasting up to the end of July.

Botanic Gardens, Dar es Salaam.

107. Plant and seed introductions for, and distributions from, the Gardens are shown in the following table :—

Introduction.		Distribution.	
Plants.	Seeds.	Plants.	Seeds.
	Packets.		Packets.
1	45	632	28

The systematic plantings in the Gardens of both indigenous and exotic species have continued.

108. *Investigations with Plants.*—Further comparative trials with fibre plants are proceeding. These include, among others, varieties of *Hibiscus Sabdariffa*, the seed of which was obtained from Java, the indigenous variety of *Hibiscus cannabinus*, and the sunn hemp, *Crotalaria juncea*. Various plots of the more promising indigenous fodder and pasture plants have been laid out. The following are the results of trials with various plants during the year :—

Vigna marina.—Received from Manila, Philippine Islands. This was sown in nursery beds in August, and germination was fair. The plants have made excellent growth, but the fruiting is poor.

Nipa fruticans.—The seeds were received from Bassein, Burma, and were planted in one of the creeks near Dar es Salaam. All failed.

Panicum trichocladum.—This appears to be one of the best of indigenous grasses for cattle. Near the sea coast it prefers light shade and damp conditions. It does not thrive in the open.

Taraktogenos Kurzii.—Seeds were received from Bengal, and failed to germinate.

Hydnocarpus Wightiana.—Seeds were received from Malabar through the Leprosy Relief Association. Germination of these was poor, and all seedlings died off, possibly because of the alkaline water used for watering them.

109. The maintenance of Government House Grounds, the laying out of the gardens attached to new Government houses, and open spaces in the Township were supervised by the Head Gardener. The care, pruning and re-planting of avenue trees throughout the Township is also done under the direct supervision of the Head Gardener, and dead and redundant trees were removed. These number three hundred and thirty-six, and the figure is exclusive of coconut palms felled for clearing plots for buildings in the new native quarter. A feature in connection with the work with trees in Dar es Salaam is the continuous vigilance necessary to keep down the spread of different species of Loranthus and Cuscuta.

110. A meteorological station of the first order was established at Dar es Salaam in August, 1926, and is cared for by the Head Gardener.

111. A beginning has been made to put the departmental museum and herbarium in order, and all exhibits and plant specimens have been classified and labelled. Various plant specimens sent for identification were named as far as possible.

112. The Head Gardener continued to act as Plant Import Inspector at Dar es Salaam. During the year seventy-three consignments of plants and planting material were examined; of these, nineteen consignments were refused entry.

CROP YIELDS.

113. The table below shows the yield per acre in 1926 of various crops from measured plots in native fields. No special treatment was accorded to any of these plots.

District and Locality.	Number of Plots Measured.	Average Yield per Acre.
Cotton (Unginned).		Lb.
Rufiji—		
Western: Mtanza	9	640
Central: Utete	12	370
Eastern: Mohoro	20	348
Moshi—		
Upare North and Central	14	735
Lindi—		
Mtua	2	1,036
Nahinu	2	838
Mtama	2	881
Libobe	2	573
Matapwa	2	330
Mwanza—		
Ntusu	2	336
Usmau	1	352
Buchosa	1	275
Tabora Province—		
Usiha	1	403
Kizumbi	1	319
Usonda	1	210
Usanga	1	335

District and Locality.	Number of Plots Measured.	Average Yield per Acre.
Maize.		Lb.
Rufiji—		
Mohoro	3	1,764
Utete	14	1,823
Mtanza	19	1,909
Moshi—		
Upare	8	2,580
Tabora	2	700
Central Province—		
Mkalama	2	710
Groundnuts (Shelled).		
Mwanza—		
Ukerewe	1	620
Usmau	1	660
Mwaminiri	1	542
Lindi—		
Mtua	1	154
Central Province—		
Mkalama	1	429
Rice (Husked).		
Rufiji (various)	38	1,343
Sorghum (Grain).		
Rufiji (various)	29	1,272
Lindi (various)	4	574
Sesame.		
Rufiji (various)	11	430
Lindi (various)	3	309
Shinyanga	1	420
Bonavist Bean.		
Rufiji—		
Utete	1	706
Lindi—		
Mtua	1	440
Mtama	1	617
Libobe	1	397
Bulrush Millet.		
Rufiji (various)	6	970
Cowpeas.		
Lindi—		
Libobe	1	485

PROGRESS OF THE CHIEF EXPORT CROPS.

114. The table referred to in paragraph 51 is now given as an introduction to this section, and no further explanation is required in respect of its indication of progress. The present section is intended to deal with the progress of these crops in the different areas.

Tanganyika Territory. Principal Exports, 1913 and 1923–26.

Export.	1913.				1923.			
	Quantity.	Value.	Per cent of Total Value.	Order.	Quantity.	Value.	Per cent. of Total Value.	Order.
	Cwts.	£			Cwts.	£		
Sisal...	416,680	535,580	30·1	I	256,900	367,228	22·2	I
Hides and skins	69,120	274,511	15·4	III	41,370	117,554	7·1	VI
Cotton	43,840	120,753	6·7	IV	29,386	177,710	10·7	IV
Copra	109,540	117,401	6·6	V	133,380	131,536	7·9	V
Groundnuts	179,220	95,932	5·3	VI	330,160	264,129	15·9	II
Beeswax	11,180	70,743	4·0	VII	6,039	24,758	1·5	X
Coffee	21,180	46,563	2·6	VIII	80,937	204,987	12·4	III
Simsim	29,520	20,407	1·1	XI	88,700	75,527	4·6	VII
Rice	15,420	8,717	0·5	—	57,721	41,517	2·5	VIII
Millet	18,210	5,498	0·3	—	121,973	36,095	2·2	IX
Total	913,910	1,296,105	72·6	—	1,145,566	1,441,041	87·0	—
Plantation Rubber	25,740	309,195	17·4	II	—	—	—	—
Ghee	6,656	15,400	0·8	X	—	—	—	—
Cotton Seed	—	—	—	—	—	—	—	—

Export.	1924.				1925.				1926.			
	Quantity.	Value.	Per cent. of Total Value.	Order.	Quantity.	Value.	Per cent. of Total Value.	Order.	Quantity.	Value.	Per cent. of Total Value.	Order.
	Cwts.	£			Cwts.	£			Cwts.	£		
Sisal...	368,560	644,835	24·7	I	365,520	688,451	22·9	I	500,400	911,293	29·1	I
Hides and skins	50,948	185,843	7·1	V	53,225	240,165	8·0	IV	41,907	164,435	5·3	V
Cotton	50,828	373,753	14·3	II	90,043	540,481	18·0	II	97,723	427,437	13·7	III
Copra	162,500	178,194	6·8	VI	152,460	160,800	5·3	VI	146,960	152,228	4·9	VI
Groundnuts	373,680	359,918	13·8	III	181,100	178,685	5·9	V	317,340	254,903	8·1	IV
Beeswax	8,497	44,666	1·7	X	5,858	42,755	1·4	X	6,147	48,179	1·5	IX
Coffee	105,222	352,529	13·5	IV	120,186	481,055	16·0	III	130,793	495,199	15·8	II
Simsim	78,180	80,324	3·1	VII	67,920	71,561	2·4	VII	71,260	68,585	2·2	VII
Rice	62,235	59,866	2·3	VIII	60,921	62,232	2·1	VIII	65,295	57,564	1·8	VIII
Millet	158,332	49,976	1·9	IX	66,531	25,517	0·8	—	58,126	24,094	0·8	—
Total	1,418,982	2,329,904	89·2	—	1,104,753	2,515,979	83·6	—	1,435,991	2,603,917	83·2	—
Plantation rubber	—	—	—	—	7,520	49,794	1·6	IX	7,151	41,310	1·3	X
Ghee	—	—	—	—	7,658	33,770	1·1	—	7,428	32,577	1·0	—
Cotton seed	—	—	—	—	86,980	32,560	1·1	—	105,900	22,185	0·7	—

Cotton.

115. The table which follows is a statement of production of lint from the crops of the 1923 season onwards, by Provinces. The figures represent the actual output as shown in the returns from ginneries, and do not agree with the figures of annual exports, since the latter are for the calendar year, and the ginning of any year's crop extends well into the following year.

Cotton Lint Production.

Province.	In Lb.				Difference per cent.	
	1923.	1924.	1925.	1926.	1925.	1926.
Eastern	2,160,387	3,875,803	3,054,171	5,442,152	— 22	+ 78
Tabora	—	175,894	365,022	615,350	+107	+ 70
Mwanza	1,807,337*	2,128,694	3,510,689	2,687,650	+ 65	— 24
Lindi	386,451	553,228	855,178	559,573	+ 54	— 35
Tanga	156,046	326,472	603,350	140,082	+ 81	— 77
Northern	46,415	409,761	267,814	264,662	— 35	— 1
Mahenge	17,068	6,483	10,782	—	+ 60	—
Bukoba	—	40,429	8,546	2,819	— 79	— 74
Iringa	—	600	14,128	—	—	—
Totals	4,573,704	7,517,364	8,689,680	9,712,288	+ 15	+ 12

* Includes Tabora.

116. The increase in the Eastern Province was almost entirely in the Morogoro and Kilosa districts (chiefly the latter), which produced over 80 per cent. of the total increase, and this was mainly in non-native production. In the Mwanza Province the decrease was due to a poor growing season. The Lindi district is responsible for the decrease in the Lindi Province, the Kilwa district production remaining stationary. The large decrease shown for Tanga Province is due to the crop being entirely given up, because of unsuitability, in the Tanga district, in which the production was 204,914 lbs. in 1925, by non-natives. Cotton-growing has been given up for the present in the Mahenge and Iringa Provinces, on account of remoteness from railways. In the Bukoba Province the crop is as yet experimental, though there is little doubt of success once a ginnery is provided.

117. The succeeding table (page 28) is a detailed statement of the progress of native cotton production throughout the Territory by Provinces.

Sisal.

118. Of 25,022 tons of sisal hemp and tow exported in 1926, 17,384 tons (69 per cent.) was produced in the north-eastern districts, chiefly Tanga. The exports of 1925 from these districts amounted to 12,355 tons; thus 73 per cent. of the increase is from these districts. Exports from the Lindi districts totalled 1,169 tons, as against 1,930 in 1925; from Dar es Salaam (for Dar es Salaam and Morogoro districts) 5,822 tons (3,662 in 1925).

Coffee.

119. A further increase in production, though slight, in the north-eastern coffee area, comprising the districts of Arusha, Moshi and Usambara, is to be recorded: from 37,136 cwts. exported in 1925 to 37,716 cwts. in 1926. Of the latter figure, 1,920 cwts. were produced by natives. The production of the mostly native-grown coffee in Bukoba district increased from 51,251 cwts. in 1923 to 73,620 cwts. in 1924, 83,023 cwts. in 1925 and 92,994 cwts. in 1926.

PRODUCTION OF COTTON BY NATIVES. IN LB.

Province.	1923.	1924.	1925.	1926.	Difference	Percentage of Total Production in Province.		Percentage of Total Native Production.	
						1925.	1926.	1925.	1926.
					Per cent.				
Eastern	807,464	2,159,471	1,690,307	2,757,434	+ 64	55	50	26·1	41·2
Tabora	—	159,930	349,622	615,350	+ 80	96	100	5·4	9·2
Mwanza	1,753,117*	1,711,292	3,410,659	2,687,650	— 22	91	100	52·8	40·1
Lindi	373,374	492,802	737,538	481,741	— 35	83	86	11·5	7·2
Tanga	11,225	102,963	204,914	97,002	— 53	34	70	3·2	1·4
Northern...	3,500	67,904	31,250	56,677	+ 80	11	21	0·5	0·9
Mahenge	7,725	4,980	10,782	—	—	—	—	0·2	—
Bukoba	—	14,468	7,880	2,819	— 65	92	100	0·1	0·0
Iringa	—	600	14,128	—	—	100	—	0·2	—
Total	2,956,405	4,714,410	6,457,080	6,698,673	+ 4	—	—	—	—

Percentage of total production of the Territory :—1923, 64·3 ; 1924, 62·7 ; 1925, 74·3 ; 1926, 67·9.

* Tabora included for 1923.

Groundnuts.

120. The figures for the three leading areas of production are as follows :—

——	1923.	1924.	1925.	1926.
	Tons.	Tons.	Tons.	Tons.
Mwanza and Shinyanga (excluding Southern Shinyanga)	7,778	6,494	4,092	10,120
Dodoma	1,927	2,695	1,094	2,205
Tabora	4,529	8,049	2,632	3,116

The 1925 season was an unusually poor one in respect of rainfall. The production of the remaining areas in 1926 was 426 tons.

Copra.

121. All coastal districts produce copra. Of the leading districts, Tanga increased its production steadily to 2,680 tons in 1925, but declined to 2,011 tons in 1926 ; Mafia Island similarly to 1,569 tons in 1925, and 1,587 in 1926 ; Dar es Salaam has remained stationary for some years (1,234 tons in 1926) ; Bagamoyo showed a decrease, from 1,161 to 1,058 tons between 1923 and 1924, but an increase to 1,232 tons in 1925 and 1,422 tons in 1926.

Simsim (Sesame).

122. Lindi district stands out in this product, and leads the production with 1,870 tons in 1925, but 1,611 tons in 1926. Districts of less importance are Mwanza, Kilwa and Morogoro, of which in 1925 and 1926 Mwanza (with Musoma) exported 486 and 798 tons respectively, and Kilwa 333 and 486 tons.

Grain.

123. This class of exports includes millets, maize, rice and pulses. The export of these depends very much upon seasonal conditions in other parts of the East. The chief producing areas for export are the Mwanza and Lindi Provinces, the former chiefly for rice, the latter for sorghum and millet. Lindi had a very poor season, and export had to be prohibited after part of the crop had left the Province ; on the other hand, Mwanza made a considerable advance, from 2,465 tons in 1925 to 3,169 in 1926, of which 2,757 tons was rice. The maize export has reached 658 tons, chiefly from Moshi and Arusha. All districts, except those too remote from the railways or coast, contribute from their food surpluses towards export, the more important (other than those mentioned) being Morogoro, Kilwa and Rufiji.

Beeswax.

124. The production for export since 1918 has been confined almost entirely to the Central Railway districts of Morogoro, Dodoma and Tabora, which produced 5,084 cwts. of a total of 5,858 cwts. exported in 1925 ; but this declined to 3,834 cwts. in 1926. Lindi has shown an increased export from 220 cwts. in 1924 to 445 cwts. in 1925, and 1,921 cwts. in 1926 ; Kilwa from 9 cwts. in 1925 to 156 cwts. in 1926.

Chillies.

125. The production of chillies has dropped rapidly, from 18,198 cwts. in 1924 to 465 cwts. in 1926, owing to the considerable fall in prices.

Gums.

126. The decrease in export of gum arabic from 11,378 cwts. in 1923 to 5,238 cwts. in 1924, which was almost completely recovered in 1925 (10,241 cwts.), fell again to 4,589 cwts. in 1926 ; the export of gum copal increased from 3,188 cwts. in 1925 to 3,333 in 1926. The former is produced almost entirely in the Tabora and Mwanza districts, the latter chiefly in the Bagamoyo and Kilwa districts.

Rubber.

127. The export of plantation rubber (Ceara), which increased, with the improved prices, from 1,000 cwts. in 1924 to 7,520 cwts. in 1925, declined to 7,144 cwts. in 1926 ; that for wild rubber increased from 583 cwts. in 1924 to 1,187 cwts in 1925, and declined to 1,103 cwts. in 1926.

Raw Sugar.

128. The export of 35 tons in 1925 declined to 33 tons in 1926, Pangani district being the chief source.

CONTROL OF PLANT PESTS AND DISEASES.

129. Owing to illness, the Entomologist has not been able to submit an Annual Report.

130. *Pink Bollworm of Cotton.*—A further inspection of the Northern Tabora and Mwanza areas by the Entomologist has confirmed the opinion that the pink bollworm does not exist in this important cotton region. The non-cotton districts to the east, west and south, with the lake on its north and north-western borders, will, it is believed, form a barrier, intended to be permanently maintained, against the spread of the pest into the region.

131. Experience has now proved that the enforcement of the legislative measures for the uprooting and burning of the crop in time to allow a three months' dead season before the next sowings is an effective means of combating the pink boll-worm. The 1926 crop was remarkably free from the pest in those districts in which these measures had been actively enforced in 1924 and 1925. The Entomologist has reported that of 2,000 bolls examined, from districts in which the infestation towards the end of the 1924 season had risen to over 50 per cent. of those examined, only 2 were found to contain the worm.

132. *Uprooting and Burning of Cotton.*—The reasons and the beneficial effect of this are becoming established in the native mind wherever cotton has become a regular and staple crop, and little difficulty in these areas is being experienced. The realisation of the value of early planting in itself is being assisted by this circumstance, and it may be said that in the leading cotton districts early planting and early uprooting are becoming established features of the cultivation. These are among the chief aims in the cotton work of the Department, the former for improved yields and cleanliness of lint, and both for freedom from pests. Unfortunately, districts of lesser production remain in which the task is proving difficult. These are particularly the southern coastal districts, potentially large cotton-producing areas ; but a campaign is to be begun in 1927 to remedy this state of affairs.

133. *Coffee Entomological Survey.*—The Entomologist made an extensive examination during the year of the coffee areas of the Tanga, Northern and Bukoba Provinces, and the results of this will be embodied in his next report. The survey showed a satisfactory cleanliness of cultivation and freedom from serious pests in all but Bukoba, in both native and non-native plantations. In regard to the native production, the survey has shown the clean condition of cultivation has now come about in the Northern Province for which two Coffee Officers were appointed, and the plantations, on the whole, are in no way inferior in condition to those cared for by the non-native planters. In the Bukoba District, however, the native plantations were observed to be badly kept and much in need of sanitation measures to keep down insect attack, particularly the bean borer (*Stephanoderes hampei*). This matter is being taken in hand and local authority has been put into force for clean cultivation.

134. *Exclusion of Pests and Diseases.*—The following plants have been placed on the schedule for the prohibited entry of seed without permit :—

Tobacco.

Tea : from India, Formosa and Japan.

Para rubber : from South America, Central America and the West Indies.

Cocoa : from South America and West Africa.

Coconut : from South America, Central America and the Lesser Antilles.

Groundnut : from India.

LEGISLATION.

135. Legislation prepared and soon to be enacted for the protection and assistance of agriculturists in the Territory has for its aims:—(*a*) The clean cultivation of coffee and freedom from insect pests; (*b*) improvement in the quality of exported coffee; (*c*) revision of the Cotton Rules of 1922; (*d*) the taking of a periodical agricultural census.

METEOROLOGICAL MATTERS.

136. At the end of 1926 the number of stations provided with meteorological equipment was eighty-seven. Of these thirty-two had rain-gauges only. Sixty-six stations furnished regular records. Appendix IV gives the monthly rainfall for these stations in 1926 and additional records for a few of the stations in widely separated parts of the Territory. It is expected that three stations of the first order will shortly be fully equipped for taking extended meteorological records, at Dar es Salaam (now complete), Mpwapwa (in agreement with the Chief Veterinary Officer) and Amani (in agreement with the Director of the Amani Institute).

REVENUE.

137. A statement is presented in Appendix V.

BIOLOGICAL AND AGRICULTURAL INSTITUTE, AMANI.

138. The Director of the Institute, Mr. W. M. Nowell, arrived in February and the administration of the Institute passed into his hands in that month. By his courtesy, the Annual Report of the Institute was prepared and submitted by the Head Gardener to this Department, and an abstract of this is given in Appendix III.

H. WOLFE,

Acting Director of Agriculture.

APPENDIX I.

DISTRIBUTION OF PLANTING MATERIAL DURING THE YEAR ENDING 31ST MARCH, 1927.

Economic Plants.

Cotton Seed	1,040¾ tons.
Groundnuts	2,505 lb.
Maize	5,417 lb.
Beans, Madagascar Butter...	100 lb.
„ Pigeon Pea	798 lb.
„ Tepary Bean	50 lb.
„ Cowpeas	250 lb.
Rice	11 tons.
Potatoes	2½ tons.
Wheat	1,000 lb.
Millets	112 lb.
Coffea robusta	1,950 plants and 1,563 lb. seed.
C. bukobensis	1,604 plants and 12 lb. seed.
C. Quillou	500 plants.
C. Liberica	333 plants.
C. hybrida	100 plants.
Ginger rhizomes	64 lb.
Rubber, Para	3 lb.
Cacao...	1 lb.
Cassava	5,000 sticks.
Tobacco	2 packets.
Fruit trees and miscellaneous plants	760 plants.

Decorative Plants.

Shade trees and wind breaks, ornamental trees, shrubs and plants.	815 plants. 10 cases. 3 bundles cuttings. 3 packets tubers. 16 packets seeds.

APPENDIX II.

LIST OF GINNERIES EXISTING IN 1926–27.

No.	District.	Locality.	Number of Gins.		Licensee.
			Saw.	Roller.	
1	Dar es Salaam ...	Pugu	2	12	Abdulrasul & Sons.
2	,, ...	Dar es Salaam ...	1	16	Rosehaugh & Co.
1	Morogoro	Morogoro	1	28	Rosehaugh & Co.
2	,, ...	Mikese	3	12	Japan Cotton Trading Co.
3	,, ...	Ngerengere	1	7	Rosehaugh & Co.
4	,, ...	Mlali	—	18	Tanganyika Cotton Co.
5	,, ...	Duthumi	—	8	Tanganyika Cotton Co.
1	Kilosa	Kilosa	—	14	Rosehaugh & Co.
2	,, ...	Rudewa	—	20	Tanganyika Cotton Co.
3	,, ...	Mkata	—	12	Karimjee Jivanjee & Co.
4	,, ...	Msowero	—	6	E. Kladites.
5	,, ...	Turiani			Tanganyika Cotton Co.
1	Rufiji	Kilimani	—	2	L. Horn.
2	,, ...	Logeloge	—	12	L. Horn.
3	,, ...	Betya†	—	6	Rosehaugh & Co.
1	Bagamoyo	Bagamoyo	1	5	Holy Ghost Mission.
1	Lindi	Lindi	—	14	Mathuradas Kalidas.
2	,, ...	Lindi†		14	Rosehaugh & Co.
1	Kilwa	Kikanda	1	7	Rosehaugh & Co.
1	Tanga	Tongoni	1	10	G. Galanos.
1	Usambara	Kwashemshi... ...	2		Coastal Trading Co.
1	Handeni	Mamundu‡			Coastal Trading Co.
1	Moshi	Moshi	—	2	N. Dadani.
2	,, ...	Himo	1	12	Shariff Jiwa & Co.
3	,, ...	Himo*		2	A. Mongardi.
4	,, ...	Himo*	1	1	F. Deusebis.
1	Mbulu	Ndulu		5	Themi Coffee Estate.
1	Shinyanga	Usagore	4		B. E. A. Corporation.
2	,, ...	Luhombo	4		B. E. A. Corporation.
1	Mwanza	Mwanza	—	14	Nakasero Trading Co.
2	,, ...	Murutunguru (Ukerewe Island)	1	10	B. E. A. Corporation.
3	,, ...	Ihale		6	G. H. Abdulrasul & Co.
4	,, ...	Nyambiti	2	6	B. C. G. Association.
5	,, ...	Nyanguge	2	5	B. C. G. Association.
6	,, ...	Pambani		10	Kampala General Agency.
7	,, ...	Runere	5	—	B. E. A. Corporation.
8	,, ...	Malampaka	5	—	B. E. A. Corporation.
9	,, ...	Bukumbi		12	Bhagwanji Sunderji.
10	,, ...	Nassa		12	G. Boschetti.

* Private ginneries.

† Not licensed in 1926–27.

‡ In course of erection.

APPENDIX III.

BIOLOGICAL AND AGRICULTURAL INSTITUTE, AMANI.

ABSTRACT OF REPORT FOR THE YEAR, 1926–27.

1. The following plantings were carried out during the year :—

(*a*) 500 seedlings of *Coffea hybrida* (*C. liberica* x *C. arabica*) were planted out and are doing well.

(*b*) Seeds of *Hydnocarpus Wightiana* and *Taraktogenous Kurzii* were received at Amani and sown. Twenty-four plants of the former species have been raised and planted out in their permanent quarters at Sigi and are doing well. Seeds of the latter species did not germinate.

(*c*) Fourteen plants of nutmeg were received from the Sigi Segoma plantations and planted at Sigi. These were, however, immediately attacked by termites and died. Some fifty seedlings have now been raised and another planting is to be made at Sigi in a plantation at present not affected by termites.

(*d*) Two hundred and fifty pounds of ginger has been planted in the nursery.

(*e*) Owing to the unsuitable situation of the present *Coffea arabica* plantation, new seedlings of this species have been raised and a plot of about $2\frac{1}{2}$ acres has been cleared in readiness for planting.

2. Distribution of planting material :—

(*a*) Plants—

Coffea robusta	1,950 plants.
C. bukobensis	1,604 ,,
C. Quillou	500 ,,
C. liberica	333 ,,
C. hybrida	100 ,,
Grevillea robusta	180 ,,
Cananga odorata	98 ,,
Terminalia Catappa	66 ,,
Maesopsis Eminii	42 ,,
Ornamental Plants	10 cases.
Bamboo Cuttings	3 bundles.
Rose Cuttings	1 ,,
Tubers	3 packets.

(*b*) Seeds—

Coffea robusta	1,563 lb.
C. bukobensis	12 lb.
Coffea spp.	24 packets.
Zingiber officinalis	64 lb.
Eriodendron anfractuosum	36 lb.
Camellia thiefera	13 lb.
Hevea brasiliensis	3 lb.
Theobroma Cacao	1 lb.
Melinis minutiflora	4 small bags.
Cinchona spp.	12 packets.
Ornamental Plants	276 ,,
Economic Plants	488 ,,

APPENDIX IV (A).

TANGANYIKA TERRITORY—RAINFALL IN MILLIMETRES, 1926.

Province.	District.	Meteorological Station.	Altitude.	Latitude. S.	Longitude. E.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year's Total.
			Feet.															
Eastern ...	Dar es Salaam	Dar es Salaam	30	6° 50′	39° 17′	0·2	2·7	2·6	416·8	118·4	3·8	Nil	6·2	55·1	98·2	63·1	0·6	767·7
	,, ...	Mafia Island	63	7 55	39 45	138·5	40·3	248·7	70·1	Nil	26·0	Nil	36·0	108·0	109·9	164·0	218·0	1,159·5
	,, ...	Msimbazi Mission	—	6 50	39 17	15·6	21·8	100·6	395·2	98·0	Nil	Nil	Nil	20·0	37·0	70·7	Nil	758·9
	,, ...	Soga	508	—	—	1·2	0·3	8·0	13·3	4·0	Nil	0·6	0·1	2·3	0·8	2·9	2·7	36·2
	Bagamoyo	Bagamoyo	S.L.	6 25	38 55	111·6	11·6	61·6	166·1	135·4	Nil	Nil	Nil	130·8	41·0	66·2	49·0	773·3
	Morogoro	Morogoro	1,628	6 48	37 46	50·2	46·0	195·7	180·7	61·7	10·0	4·0	8·8	102·4	19·7	47·7	70·3	797·2
	,, ...	Ngerengere	641	6 47	38 08	50·5	29·6	161·0	86·5	77·5	9·0	15·0	1·5	108·0	16·5	92·0	22·5	669·6
	Kilosa	Kilosa	1,606	6 48	37 01	106·5	135·0	106·0	163·8	96·0	Nil	Nil	Nil	54·6	39·4	135·0	55·4	891·7
	Rufiji	Mpanganya	105	8 05	38 40	111·8	51·9	61·1	307·4	30·6	Nil	Nil	14·1	33·5	5·4	102·9	28·8	747·5
	,, ...	Utete	327	8 00	38 45	76·3	37·9	180·3	225·1	9·6	Nil	Nil	Nil	35·5	2·0	92·5	51·1	710·3
Central ...	Dodoma	Dodoma	3,693	6 11	35 46	185·4	133·4	51·2	68·7	Nil	Nil	Nil	Nil	Nil	9·4	13·0	163·6	624·7
	,, ...	Buigiri Mission	3,000	6 00	36 00	9·0	2·2	1·2	0·8	Nil	Nil	Nil	Nil	Nil	Nil	0·1	6·6	19·9
	,, ...	Mpwapwa	—	—	—	190·3	146·6	28·6	52·6	9·8	Nil	Nil	2·8	10·8	5·6	7·4	130·2	584·7
	Kondoa	Kondoa	4,610	4 57	35 38	134·5	42·2	79·9	109·6	6·2	Nil	Nil	Nil	15·6	11·5	73·7	147·9	621·1
	Manyoni	Manyoni	4,135	5 39	34 07	219·8	116·2	205·7	83·5	Nil	Nil	Nil	Nil	4·0	16·1	50·2	150·5	846·0
	Singida	Mkalama	4,235	4 06	34 38	92·4	112·4	107·4	194·3	22·1	Nil	Nil	Nil	11·2	43·3	58·4	174·3	815·8
	,, ...	Mvumi Mission	3,300	5 00	35 00	245·1	119·6	40·0	39·9	Nil	Nil	Nil	Nil	Nil	Nil	0·1	10·2	454·9
	,, ...	Singida	5,233	4 48	34 45	96·8	107·0	142·4	131·5	Nil	Nil	Nil	Nil	Nil	12·4	9·7	171·8	671·6
Tabora ...	Kahama	Kahama	4,055	3 35	32 33	117·2	101·2	247·2	225·2	34·0	Nil	16·9	Nil	36·2	72·8	94·6	225·6	1,170·9
	,, ...	Ushirombo	—	—	—	45·6	123·7	130·6	217·9	13·4	0·6	8·2	9·0	83·1	100·0	82·5	210·3	1,024·9
	Nzega	Nzega	4,000	4 15	33 08	103·6	166·4	163·5	146·0	13·0	Nil	26·0	Nil	38·0	36·0	74·6	207·6	974·7
	Shinyanga	Kola Ndota Mission	4,400	3 34	33 19	201·3	48·9	169·7	177·4	14·2	Nil	6·0	Nil	30·2	44·9	59·0	98·9	850·5
	,, ...	Luhombo	4,400	3 60	33 03	95·1	63·6	219·5	138·8	18·0	Nil	26·0	Nil	52·3	65·5	57·0	172·7	908·5
	Tabora	Tabora	4,000	5 00	32 00	160·0	174·1	124·7	108·4	12·5	Nil	Nil	Nil	70·0	44·0	68·7	154·7	917·1
Kigoma ...	Namanyere	Kala Mission	—	—	—	842·0	733·0	532·0	88·0	15·0	Nil	il	Nil	Nil	139·0	185·0	917·0	3,451·0
	,, ...	Kasanga	2,630	8 30	31 00	286·0	237·1	185·8	35·3	3·6	Nil	Nil	Nil	3·4	4·0	47·5	228·7	1,031·4
	,, ...	Kate Mission	—	—	—	109·2	165·4	182·9	856·0	833·1	144·8	Nil	Nil	2·8	26·1	107·4	126·5	2,554·2
	,, ...	Namanyere	5,100	8 00	32 00	62·7	83·5	88·8	35·6	20·3	8·9	Nil	Nil	23·6	18·0	55·0	78·2	474·6
	Kasulu	Kasulu	4,530	4 35	30 07	132·5	110·5	107·5	146·0	104·0	Nil	Nil	22·3	66·9	115·2	107·2	180·6	1,092·7
	Kigoma	Kigoma	2,531	4 52	29 38	170·0	185·0	85·0	77·5	148·0	Nil	10·0	13·0	24·0	29·0	72·0	157·0	970·5
	,, ...	Ujiji	2,738	4 59	29 47	57·0	184·4	146·1	117·6	123·5	Nil	34·0	Nil	4·5	34·1	217·1	84·4	1,002·7

Lindi	Kilwa	Kibata	1,700	8	50	39	00	204·0	85·0	230·2	177·6	61·6	0·4	Nil	Nil	197·3	2·1	232·3	216·3	1,406·8
	,, ...	Kilwa	S.L.	8	44	39	25	48·1	52·5	132·6	207·8	12·4	Nil	Nil	1·3	47·9	24·0	156·7	53·8	737·1
	,, ...	Liwale	1,500	9	45	38	00	173·2	112·5	155·1	77·4	Nil	Nil	Nil	6·0	12·1	Nil	91·5	171·0	798·8
	Lindi	Lindi	S.L.	10	00	39	43	109·1	51·0	98·3	91·4	Nil	Nil	Nil	46·0	58·0	12·7	130·2	201·1	797·8
	,, ...	Masasi Mission	1,505	10	42	38	53	196·9	82·4	129·1	28·2	1·0	Nil	Nil	0·8	16·2	Nil	80·0	102·4	637·0
	,, ...	Tunduru	2,300	11	05	37	27	218·1	111·0	68·0	28·0	Nil	Nil	Nil	Nil	Nil	Nil	8·0	116·0	549·1
	Mikindani	Mikindani	—	10	16	40	07	240·0	78·7	186·7	147·3	Nil	Nil	Nil	Nil	35·6	43·2	180·3	236·2	1,148·0
Tanga	Pangani	Lulago Estate	—	—		—		110·9	38·7	186·2	252·1	189·5	58·2	9·4	19·3	161·3	32·7	210·5	91·7	1,360·5
	,, ...	Pangani	S.L.	5	25	38	58	568·0	18·2	164·4	192·7	227·9	61·7	27·1	44·4	76·3	39·9	147·3	9·0	1,576·9
	Tanga	Tanga	S.L.	5	40	39	07	10·8	36·2	159·3	178·2	231·1	58·4	71·9	26·0	62·3	58·3	174·5	49·1	1,116·1
	Usambara....	Amani	3,004	5	06	38	38	76·9	3·7	125·3	202·9	243·5	79·9	60·5	80·0	162·3	116·3	402·4	41·9	1,595·6
	,, ...	Kwashemshi	—	—		—		54·6	72·3	206·4	287·5	145·1	41·0	2·0	37·0	100·1	25·1	292·1	62·0	1,325·2
	,, ...	Lushoto	4,579	4	47	38	17	40·0	55·0	157·8	194·0	171·5	50·3	19·0	27·1	33·0	18·4	101·8	112·8	980·7
	,, ...	Suji Mission	—	—		—		88·4	44·0	107·4	112·5	29·7	Nil	Nil	0·6	13·7	17·3	61·8	193·6	669·0
Northern ...	Arusha	Arusha	4,416	3	23	36	43	20·1	110·0	156·6	368·9	121·2	26·1	1·6	Nil	28·3	12·4	103·5	11·0	959·7
	Moshi	Kilema Mission	4,703	3	19	37	29	60·3	3·0	362·7	589·2	220·6	49·7	60·9	Nil	43·2	74·8	170·9	45·0	1,680·3
	,, ...	Moshi	2,649	3	22	37	22	63·0	13·7	315·4	398·9	149·4	7·9	3·2	Nil	10·0	8·0	53·0	8·9	1,031·4
	,, ...	Mweka Estate	3,850	3	17	37	19	9·5	15·0	168·0	673·0	278·0	62·5	22·0	3·5	20·0	37·0	81·0	14·5	1,384·0
	Mbulu	Mbulu	5,900	3	52	35	37	61·9	45·7	195·9	271·7	33·0	3·6	Nil	Nil	10·8	32·3	41·3	66·3	762·5
Mwanza ...	Musoma	Musoma	3,709	1	28	33	47	87·9	104·4	53·3	200·6	152·8	Nil	34·9	17·3	17·2	72·9	164·1	13·9	919·3
	Mwanza	Kome Island	3,800	2	25	32	28	34·0	92·0	166·0	253·0	70·0	Nil	30·0	30·0	146·2	89·0	170·0	81·0	1,161·2
	,, ...	Morutunguru Mission	—	—		—		95·0	115·6	199·4	594·4	196·8	Nil	Nil	12·7	82·5	67·3	288·0	112·8	1,744·5
	,, ...	Mwanza	3,709	3	32	32	53	29·7	209·2	142·0	309·2	36·3	2·4	34·7	2·4	131·8	40·1	187·0	173·4	1,298·2
	,, ...	Sumvi Island	4,000	2	45	33	15	84·5	136·9	112·4	141·1	27·0	Nil	3·9	5·2	88·2	184·2	133·5	157·1	1,074·0
Bukoba ...	Biharamulo	Biharamulo	4,350	2	42	31	26	82·2	110·0	112·3	208·0	27·2	40·6	27·4	17·5	31·0	4·7	5·5	5·0	671·4
	Bukoba	Bukoba	3,709	1	20	31	47	129·2	207·8	365·1	387·1	304·3	154·8	39·3	18·8	144·9	131·6	174·9	78·8	2,136·6
	,, ...	Kagondo Mission....	4,252	1	18	31	15	103·8	73·2	279·8	315·0	196·1	99·9	7·7	11·0	134·0	103·8	190·4	100·4	1,615·1
Mahenge ...	Songea	Lituhi Mission	—	—		—		947·0	498·0	683·0	313·0	35·0	12·0	27·0	33·0	1·0	86·0	190·0	961·0	3,786·0
	,, ...	Songea	3,826	10	42	35	40	302·6	132·3	304·4	64·8	2·2	Nil	Nil	Nil	7·1	6·6	71·9	129·8	1,021·7
	Mahenge	Mahenge	3,352	8	40	36	43	400·0	377·0	287·5	372·7	111·8	Nil	Nil	26·0	Nil	Nil	140·0	267·0	1,982·0
Iringa	Iringa	Iringa	5,365	7	43	35	37	115·7	63·8	107·9	46·4	12·2	Nil	Nil	Nil	8·8	13·9	39·0	117·0	524·7
	Mbeya	Igali	—	—		—		243·0	206·8	166·2	94·7	Nil	Nil	Nil	4·0	Nil	13·2	72·5	102·4	902·8
	,, ...	Madibira Mission	3,598	8	00	34	08	6·0	2·6	4·5	1·9	1·0	Nil	Nil	Nil	Nil	0·2	1·0	6·1	23·3
	Njombe	Kidugalo	5,472	9	09	35	28	198·3	153·0	75·2	5·7	Nil	Nil	Nil	Nil	Nil	Nil	Nil	144·6	576·8
	,, ...	Milo	8,300	10	04	34	39	215·8	298·6	224·4	273·8	12·5	2·8	Nil	6·2	Nil	3·2	82·7	231·1	1,351·1
	Rungwe	Kimbila Mission	4,400	9	15	33	40	269·0	269·0	526·1	557·3	224·6	63·0	89·4	126·2	Nil	30·7	201·9	198·1	2,555·3
	,, ...	Tukuyu	5,069	9	15	33	38	322·1	157·5	377·2	543·5	219·7	112·2	97·1	115·8	Nil	79·6	162·1	196·2	2,383·0

APPENDIX IV (B).

STATION: DAR ES SALAAM, 1926.

METEOROLOGICAL OBSERVATIONS.

Longitude, 39° 40′ E. Latitude, 6° 80′ S. Altitude, 20 feet.

Months.	Mean Pressure.	Air Temperature (Degrees Centigrade).									Tension of Vapour.				Relative Humidity.			
		7	1	9	Mean.	Mean of Min.	Mean of Max.	Absolute Minimum and Maximum. Min.	Date.	Max.	Date.	7	1	9	Mean.	9 a.m.	4 p.m.	Mean.
January					29·0	25·7	32·4	23·0	4	33·5	13, 15							
February					29·2	25·6	32·8	23·0	19	34·0	21							
March					28·5	24·7	32·4	23·0	24, 25, 30, 31	34·5	17							
April					26·9	23·1	30·8	22·2	4, 5, 8, 24, 25, 26, 27, 28	33·1	1, 12							
May					26·2	21·7	30·8	20·0	19, 20, 21	32·2	10, 14, 26							
June					25·4	25·0	30·3	19·2	23, 27, 28	32·2	2, 18, 19, 20							
July					25·0	20·0	30·0	18·1	26, 31	32·2	5, 25							
August					24·3	19·3	29·4	18·0	1, 18, 19	31·0	13, 24, 30							
September					24·8	20·7	29·0	19·0	1, 6, 7	33·0	7							
October					25·2	21·3	29·2	20·0	15, 16	31·0	11, 28							
November					26·2	22·2	30·3	19·0	6	33·0	26							
December					29·0	25·7	32·4	22·0	3, 9	34·5	15							

Months.	Amount of Cloud.			Rainfall in millimetres on any one day.				Weather. No. of days of							Wind. No. of Observations of								
	7	1	9	Mean.	Total for month.	Max.	Date.	Rain.	Snow.	Hail.	Thunder Storms.	Clear sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
January				—	0·2	0·2	17	4															
February				—	2·7	2·3	22	5															
March				—	2·5	0·3	25, 28	17															
April				13·9	416·8	60·9	25	29															
May				3·8	118·3	71·1	3	11															
June				0·1	3·8	3·8	8	1															
July				—	—	—	—	—															
August				0·2	6·2	3·2	11	6															
September				1·8	55·1	23·2	23	9															
October				3·2	98·2	58·0	31	8															
November				2·1	63·1	30·4	7	9															
December				—	0·6	0·6	7	1															

Station: KILWA, 1926.

Longitude, 39° 21′ E. Latitude, 8° 57′ S. Altitude, Sea Level.

Months.	Mean Pressure.	Air Temperature (Degrees Centigrade).									Tension of Vapour.				Relative Humidity.			
		7	1	9	Mean.	Mean of Min.	Mean of Max.	Absolute Minimum and Maximum. Min.	Date.	Max.	Date.	7	1	9	Mean.	9 a.m.	4 p.m.		Mean.
January					27·3	22·8	31·8	20·5	14, 15, 18	33·0	7, 8, 9, 10, 11, 14								
February					27·7	23·1	32·4	21·5	24, 25	34·0	12, 22, 23								
March					27·4	22·3	32·5	20·5	26, 30, 31	35·0	15, 16								
April					26·8	21·4	32·3	19·5	28	34·0	5, 16, 17, 19, 21, 22, 25								
May					25·5	19·7	31·8	17·5	18, 19	33·0	30								
June					25·3	18·8	31·8	16·0	23	33·0	2, 22								
July					23·7	16·8	30·7	14·0	26	32·5	3, 4								
August					23·5	16·1	30·9	14·0	20	31·5	13, 22, 24, 27, 30								
September					23·3	16·4	30·3	13·0	10	32·5	22								
October					24·0	17·1	31·0	15·5	13, 16	32·5	31								
November					24·0	16·6	31·4	14·0	10	33·0	3, 23								
December					24·1	15·9	32·3	13·0	24, 25	33·5	20, 21, 22								

Months.	Amount of Cloud.			Rainfall in Millimetres on any One Day.				Weather. No. of days of							Wind. No. of Observations of								
	7	1	9	Mean.	Total for Month.	Max.	Date.	Rain.	Snow.	Hail.	Thunder Storms.	Clear Sky.	Over-cast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
January				1·5	48·1	17·5	18	10															
February				1·9	52·5	29·5	24	5															
March				4·3	132·6	29·3	23	13															
April				6·9	207·8	77·4	25	17															
May				0·4	12·4	7·4	2	2															
June				—	Nil	—	—	—															
July				—	Nil	—	—	—															
August				—	1·3	1·3	22	1															
September				1·6	47·9	25·6	9	3															
October				0·8	24·0	7·3	12	7															
November				5·2	156·7	42·5	9	7															
December				1·7	53·8	38·4	23	4															

STATION: AMANI, 1926.

Longitude, 38° 38′ E. Latitude, 5° 6′ S. Altitude, 3,004 feet.

Months.	Mean Pressure	Air Temperature (Degrees Centigrade).									Tension of Vapour.				Relative Humidity.			
		7	1	9	Mean	Mean of Min.	Mean of Max.	Absolute Minimum and Maximum. Min.	Date.	Max.	Date.	7	1	9	Mean.	9 a.m.	4 p.m.	Mean.
January					23·2	18·3	28·1	16·0	8	30·0	31							
February					23·7	17·7	29·8	15·4	5, 19	31·5	25, 26							
March					24·0	18·5	29·5	15·0	6	33·0	16							
April					22·7	18·3	27·1	17·0	5, 13, 25	30·0	2							
May					20·5	17·0	24·1	15·0	12, 20, 29	26·5	10, 11							
June					19·7	16·3	23·1	13·5	29	25·0	2, 18							
July					23·8	16·8	30·8	14·0	26	32·5	3, 4							
August					18·0	13·5	22·5	10·5	21	25·0	24, 27							
September					19·1	14·6	23·6	11·5	7, 23	27·0	16							
October					20·0	15·6	24·4	13·0	15, 16	27·0	24, 25, 26, 28, 29, 31							
November					20·8	16·4	25·3	14·0	13	27·5	24							
December					22·4	18·0	26·9	15·0	4	28·0	16, 24, 30							

Months.	Amount of Cloud.			Rainfall in millimetres on any one day.				Weather. No. of days of							Wind. No. of Observations of								
	7	1	9	Mean.	Total for month.	Max.	Date.	Rain.	Snow.	Hail.	Thunder Storms.	Clear sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
January				2·5	76·9	32·5	14	4															
February				0·1	3·7	1·3	14	4															
March				4·0	125·3	39·0	25	13															
April				6·8	202·9	47·0	30	23															
May				7·8	243·5	44·0	4	20															
June				2·6	79·9	18·0	13	16															
July				1·9	60·5	12·0	27	17															
August				2·6	80·0	49·0	6	12															
September				5·4	162·3	39·4	9	16															
October				3·7	116·3	44·0	12	20															
November				13·4	402·4	232·0	7	20															
December				1·3	41·9	8·2	6	11															

STATION: ARUSHA, 1926.

Longitude, 36° 43′ E. Latitude, 3° 23′ S. Altitude, 4,416 feet.

Months.	Mean Pressure.	Air Temperature (Degrees Centigrade).										Tension of Vapour.				Relative Humidity.			
		7	1	9	Mean.	Mean of Min.	Mean of Max.	Absolute Minimum and Maximum. Min.	Date.	Max.	Date.	7	1	9	Mean.	9 a.m.	4 p.m.		Mean.
January					21·6	13·5	29·7	10·0	11	33·0	28, 30, 31								
February					22·6	14·3	31·0	11·0	6, 7, 8	35·0	14, 19, 20								
March					22·3	16·0	28·7	14·0	4, 17	32·0	16								
April					21·6	17·0	26·3	14·5	14, 20, 22	28·0	1, 5, 6, 7, 9, 10, 12, 14, 16, 17								
May					19·5	15·2	23·9	12·5	23	26·0	8, 10, 11, 13								
June					18·3	13·9	22·7	12·0	16, 24	25·0	3, 5								
July					17·8	13·0	22·7	10·0	26	26·0	23								
August					18·3	12·8	23·9	11·0	3, 18, 20, 21	27·0	27								
September					20·5	13·5	27·6	10·5	3	30·0	13, 14, 15, 16, 19, 20								
October					19·5	14·4	24·6	11·0	28, 29	32·0	25								
November					21·7	15·5	27·9	13·0	1, 22	30·0	1, 2, 3, 4, 5, 24, 30								
December					22·3	14·6	30·1	12·0	2, 10, 16, 20	33·0	22, 23, 26								

Months.	Amount of Cloud.			Rainfall in millimetres on any one day.				Weather. No. of days of							Wind. No. of Observations of								
	7	1	9	Mean.	Total for month.	Max.	Date.	Rain.	Snow.	Hail.	Thunder Storms.	Clear sky.	Over-cast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
January				0·6	20·1	9·9	24	4															
February				3·9	110·0	89·0	22	7															
March				5·0	156·6	46·9	22	14															
April				12·3	368·9	58·5	10	27															
May				3·9	121·2	25·5	1	11															
June				0·9	26·1	18·0	10	7															
July				—	1·6	1·0	4	2															
August				—	Nil	—		—															
September				0·9	28·3	12·0	24	6															
October				0·4	12·4	6·1	26	3															
November				3·4	103·5	30·7	8	7															
December				0·4	11·0	3·5	27	7															

STATION: MANYONI, 1926.

Longitude, 34° 07′ E. Latitude, 5° 39′ S. Altitude, 4,135 feet.

Months.	Mean Pressure.	Air Temperature (Degrees Centigrade).										Tension of Vapour.				Relative Humidity.			
		7	1	9	Mean.	Mean of Min.	Mean of Max.	Absolute Minimum and Maximum. Min.	Date.	Max.	Date.	7	1	9	Mean.	9 a.m.	4 p.m.		Mean.
January					20·3	13·2	27·4	11·0	15, 16, 19	31·0	10								
February					20·7	13·2	28·3	11·0	1, 3	31·0	16, 17, 18, 19								
March					19·8	12·6	27·0	11·0	5, 6, 7, 8, 9, 10	29·0	10, 11, 14, 16, 17								
April					20·0	12·6	27·5	10·0	21, 22, 23	29·0	10, 11, 12, 13, 14, 15, 16, 17, 18, 19								
May					19·4	11·3	27·5	10·0	16, 17, 20, 26, 29, 31	30·0	17, 18								
June					19·3	11·1	27·5	10·0	5, 9, 10, 15, 17, 20, 21, 22, 25, 26, 27	29·0	5, 15, 16, 18, 24								
July					19·4	11·1	27·7	10·0	5, 6, 7, 8, 12, 13, 19, 20, 26, 28, 29	29·0	5, 18, 21, 22, 23, 24, 25								
August					18·9	11·3	26·6	8·0	4	28·0	12, 13, 15, 16, 17, 18								
September					19·4	11·6	27·3	8·0	2	31·0	15								
October					19·9	11·7	28·1	10·0	9, 22, 23	31·0	26, 27, 28, 29, 30								
November					19·7	9·6	29·8	7·0	24, 25	32·0	13, 24, 29								
December					19·1	8·8	29·4	7·0	2, 14, 16, 22	34·0	4								

Months.	Amount of Cloud.			Rainfall in millimetres on any one day.				Weather. No. of days of							Wind. No. of Observations of								
	7	1	9	Mean.	Total for month.	Max.	Date.	Rain.	Snow.	Hail.	Thunder Storms.	Clear sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
January				7·0	219·8	67·6	16	15															
February				4·2	116·2	40·0	24	6															
March				6·6	205·7	85·4	29	15															
April				2·9	83·5	28·0	12	8															
May				—	Nil	—	—	—															
June				—	Nil	—	—	—															
July				—	Nil	—	—	—															
August				—	Nil	—	—	—															
September				0·1	4·0	4·0	24	1															
October				0·5	16·1	10·0	25	5															
November				1·7	50·2	23·5	17	7															
December				4·8	150·5	43·3	20	11															

STATION: MWANZA TOWNSHIP, 1926.

Longitude, 32° 53′. Latitude, 3° 32′. Altitude, 3,709 feet.

Months.	Mean Pressure.	Air Temperature (Degrees Centigrade).										Tension of Vapour.				Relative Humidity.			
		7	1	9	Mean.	Mean of Min.	Mean of Max.	Absolute Minimum.	Date	Absolute Maximum.	Date	7	1	9	Mean.	9 a.m.	4 p.m.		Mean.
January					24·0	18·4	29·6	16·0	15	34·0	28								
February					23·3	18·6	28·0	15·0	5	31·0	9, 19								
March					23·1	18·4	27·8	16·0	13	31·0	4, 5, 6								
April					22·4	18·1	26·7	16·0	17	30·0	1, 29								
May					22·6	17·7	27·5	16·0	23, 25, 29	31·0	11								
June					22·9	17·2	28·7	15·0	15, 16	31·0	17, 19								
July					22·1	16·5	27·8	14·0	11, 27	31·0	6								
August					22·7	16·7	28·7	14·0	11	31·0	3, 15, 16, 27, 31								
September					22·8	17·8	27·9	15·0	4, 30	31·0	9								
October					22·6	17·6	27·7	13·0	31	30·0	16, 20, 30								
November					22·2	17·4	27·0	15·0	21, 23	31·0	1, 6								
December					22·4	17·5	27·3	16·0	20, 22, 24, 30	33·0	26								

Months.	Amount of Cloud.			Rainfall in millimetres on any one day.				Weather. No. of days of							Wind. No. of Observations of								
	7	1	9	Mean.	Total for month.	Max.	Date.	Rain.	Snow.	Hail.	Thunder Storms.	Clear sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
January				0·9	29·7	8·0	13	10															
February				7·4	209·2	63·8	4	16															
March				4·5	142·0	27·7	13	16															
April				10·3	309·2	77·0	11	21															
May				1·1	36·3	11·4	9	12															
June				—	2·4	2·4	11	1															
July				1·1	34·7	22·6	12	4															
August				—	2·4	2·0	5	2															
September				4·3	131·8	57·9	20	14															
October				1·2	40·1	13·4	8	9															
November				6·2	187·0	90·7	23	16															
December				5·5	173·4	36·0	22	15															

STATION: MOSHI, 1926.

Longitude, 37° 22′. Latitude, 3° 22′. Altitude, 2,649 feet.

Months.	Mean Pressure.	Air Temperature (Degrees Centigrade).										Tension of Vapour.				Relative Humidity.		
		7	1	9	Mean.	Mean of Min.	Mean of Max.	Absolute Minimum.	Date.	Absolute Maximum.	Date.	7	1	9	Mean.	9 a.m.	4 p.m.	Mean.
January					26·4	17·8	35·0	15·6	9	37·8	11							
February					27·5	18·7	36·3	16·5	6	39·4	14							
March					26·9	19·4	34·4	17·2	4	37·6	11							
April					24·6	20·0	29·2	18·0	22, 30	33·2	2							
May					23·1	18·7	27·5	17·0	18, 30	30·0	[illegible] 24							
June					22·2	17·8	26·7	15·5	24	29·5	[illegible]							
July					21·7	16·6	26·8	14·0	25	29·5	[illegible]							
August					23·2	18·5	27·9	14·5	2, 5	30·0	[illegible]							
September					25·2	19·5	30·9	17·0	2	35·5	19							
October					25·6	19·4	31·8	17·5	11	35·5	25							
November					26·7	21·7	31·8	18·0	10	35·0	15							
December					27·7	21·0	34·5	19·5	8	37·0	23, 34							

Months.	Amount of Cloud.			Rainfall in millimetres on any one day.				Weather. No. of days of						Wind. No. of Observations of								
	7	1	9	Mean.	Total for month.	Max.	Date.	Rain.	Snow.	Hail.	Thunder Storms.	Clear sky.	Overcast.	Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
January				2·0	63·0	34·4	15	3														
February				0·4	13·7	8·1	18	6														
March				10·1	315·4	100·0	22	15														
April				13·2	398·9	92·9	21	27														
May				4·8	149·4	38·0	4	14														
June				0·2	7·9	6·8	9	2														
July				0·1	3·2	3·2	24	4														
August				—	Nil	—	—	—														
September				0·3	10·0	10·0	25	2														
October				0·2	8·0	8·0	10	1														
November				1·7	53·0	25·0	9	10														
December				0·2	8·9	3·5	3	5														

TANGANYIKA TERRITORY. AVAILABLE RAINFALL AVERAGES (IN MILLIMETRES) TO END OF 1925.

Province.	Meteorological Station.	Altitude.	Latitude. S.	Longitude. E.	Number of years German Records.	Total number of years of Records.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept	Oct.	Nov.	Dec.	Total.	Highest Annual Rainfall.	Lowest Annual Rainfall.
		Feet.																			
Northern ...	Arusha	4,416	3° 23′	36° 43′	—	4	58·7	120·5	129·2	333·0	163·4	39·2	14·1	19·1	16·2	35·9	172·6	91·4	1,193·3	1,222·5	1,155·5
	Mbulu	5,900	3 52	35 37	3	7	102·8	109·0	100·7	146·7	67·7	2·4	1·5	2·4	5·4	12·1	87·5	104·1	742·3	1,217·0	594·0*
	Moshi	2,649	3 22	37 22	12	17	34·1	58·2	88·9	370·8	264·9	46·7	40·7	22·7	18·2	25·9	78·9	46·2	1,096·2	774·5	470·0*
Tanga	Tanga	S.L.	5 40	39 07	18	23	43·8	68·2	92·8	313·5	329·4	69·1	101·1	83·5	79·6	110·4	187·7	61·1	1,540·2	2,237·1	1,113·8*
	Amani	3,004	5 06	38 38	10	15	95·5	81·7	144·0	407·4	360·9	114·2	116·5	96·5	96·2	159·9	191·5	162·9	2,027·2	2,380·8	1,560·2*
	Lushoto	4,579	4 47	38 17	10	15	70·4	88·1	115·8	241·2	220·1	45·1	42·9	15·1	11·5	30·9	105·2	118·0	1,104·3	1,451·4	968·6*
	Sakare	4,500	5 00	38 25	8	12	82·4	84·9	95·4	372·4	557·9	122·0	139·9	74·8	57·8	95·3	100·1	81·5	1,864·4	1,893·6	1,584·1*
	Pangani	S.L.	5 25	38 58	12	16	51·4	30·4	90·5	235·7	217·3	48·5	70·6	42·7	31·9	65·5	121·5	67·6	1,073·6	1,217·0	715·8*
Eastern ...	Dar es Salaam	30	6 50	39 17	19	24	80·4	56·3	105·1	283·4	177·4	30·9	40·9	26·2	27·8	35·0	73·4	95·2	1,032·0	1,196·3	640·3*
	Bagamoyo	S.L.	6 25	38 55	14	18	91·0	51·1	107·8	247·4	175·3	33·9	36·7	31·6	23·0	39·3	94·2	114·7	1,046·0	1,260·5	597·6*
	Kilindoni (Mafia)	63	7 55	39 45	—	4	188·3	157·6	240·4	282·2	191·6	53·1	27·6	10·7	14·3	16·5	90·3	133·4	1,406·0	1,592·9	1,255·0
	Utete	327	8 00	38 45	—	3	85·4	103·1	123·1	84·6	70·0	22·1	2·9	Nil	6·7	34·4	93·0	38·5	663·8	779·3	580·8
	Mpanganya	105	8 05	38 40	5	6	133·0	77·4	163·9	231·2	66·7	0·9	3·6	4·7	9·1	28·1	54·6	63·0	836·2	—	—
	Morogoro	1,628	6 48	37 46	7	10	108·5	107·4	194·8	236·9	87·4	39·8	21·8	8·9	17·6	22·6	40·1	129·0	1,017·8	857·4	638·8*
	Kilosa	1,606	6 48	37 01	12	15	129·1	139·0	132·9	163·3	61·6	12·9	15·8	17·2	14·7	22·0	55·2	96·9	860·6	1,045·8	781·4*
	Ngerengere	641	6 47	38 08	—	4	71·4	131·3	89·1	148·4	125·6	31·9	6·7	23·2	45·3	38·8	78·3	66·2	856·2	972·7	798·6
Lindi	Lindi	S.L.	10 00	39 43	13	17	144·9	116·2	147·0	151·2	43·3	4·8	3·4	8·0	8·4	18·9	58·4	127·7	832·2	936·8	427·8*
	Tunduru	2,300	11 05	37 27	—	4	232·4	223·7	189·8	77·2	22·2	1·9	1·7	44·9	1·0	7·3	24·8	115·4	942·3	1,227·6	571·9
	Masasi Mission	1,505	10 42	38 53	4	8	156·9	167·7	234·7	120·4	19·7	2·9	0·2	4·0	4·3	8·4	27·5	113·8	860·5	1,221·6	546·3*
	Mikindani	40	10 16	40 07	10	12	119·1	105·0	120·1	158·3	45·3	8·5	10·1	7·5	11·3	9·7	23·7	165·4	784·0	328·0	68·0*
	Kilwa	S.L.	8 44	39 25	14	18	127·7	113·3	156·0	211·2	66·2	10·0	10·6	12·5	14·1	16·4	44·8	117·0	899·8	1,036·0	470·2*
	Liwale	1,500	9 45	38 00	—	4	149·6	294·0	108·9	95·9	46·4	0·2	0·7	3·8	3·8	21·5	33·5	122·1	880·4	1,229·8	502·7
Central ...	Dodoma	3,693	6 11	35 46	—	4	125·3	108·9	46·1	62·2	2·0	Nil	Nil	Nil	Nil	Nil	17·8	98·1	460·4	722·5	220·8
	Manyoni	4,135	5 39	34 07	—	3	153·9	93·7	76·4	117·6	6·0	0·9	Nil	Nil	Nil	2·7	81·4	103·0	636·8	875·9	332·6
	Singida	5,233	4 48	34 45	3	6	126·9	101·8	110·8	54·8	4·8	0·8	Nil	0·3	Nil	4·5	45·6	106·1	556·4	749·6	495·0*
	Kondoa Irangi	4,610	4 57	35 38	9	12	100·7	99·0	96·3	72·4	11·2	0·8	Nil	0·2	Nil	5·4	30·5	100·3	516·8	477·6	281·1*
	Mkalama	4,235	4 06	34 38	4	8	99·5	95·6	125·4	92·3	31·6	0·5	2·0	1·5	1·4	11·5	85·1	115·7	662·1	1,101·9	520·0*
Tabora ...	Kahama	4,055	3 35	32 33	—	4	116·1	163·2	174·4	122·5	37·0	6·9	Nil	0·9	2·6	37·2	135·3	119·9	916·0	1,040·3	739·3
	Tabora	4,000	5 00	32 00	14	17	129·1	120·1	157·4	136·3	15·9	2·7	Nil	0·6	4·4	13·3	114·4	131·5	825·7	1,303·4	546·0*
	Kolandota Mission	4,400	3 34	33 19	—	3	62·3	104·1	124·7	103·9	50·8	5·8	Nil	Nil	11·2	13·7	135·3	132·9	744·7	892·7	550·2
Kigoma ...	Kigoma	2,531	4 52	29 38	—	4	77·8	81·9	90·0	104·5	24·3	23·3	2·2	0·7	25·0	40·2	164·8	175·2	809·9	1,165·4	482·8
	Ujiji	2,738	4 59	29 47	9	13	107·0	124·1	140·3	150·7	43·3	7·4	5·9	3·6	12·9	42·0	111·1	124·7	873·0	979·3	665·6*
	Kasulu	4,530	4 35	30 07	—	4	187·5	185·4	187·1	197·2	48·4	8·7	Nil	4·4	17·5	77·3	129·5	171·9	1,214·9	1,323·7	1,101·8
	Namanyere	5,100	8 00	32 00	—	3	144·6	147·6	137·6	109·5	77·4	Nil	3·4	7·8	21·3	17·2	80·4	147·7	894·5	988·3	816·0
	Kasanga	2,630	8 30	31 00	6	9	146·2	207·2	128·2	78·7	8·0	1·3	Nil	Nil	0·2	10·5	73·3	152·4	806·0	1,073·5	570·4*
Iringa	Iringa	5,365	7 47	35 37	5	8	151·5	110·3	159·2	81·7	5·3	1·0	0·1	Nil	Nil	2·7	46·2	99·5	657·5	818·1	655·6*
	Malangali	4,775	8 35	30 00	—	3	160·1	155·0	156·9	29·9	0·2	Nil	Nil	Nil	4·1	Nil	41·0	144·1	691·3	811·3	608·6
	Tukuyu	5,069	9 15	33 38	9	14	246·4	219·0	339·6	541·0	322·4	65·8	60·8	50·5	54·7	60·2	105·5	191·6	2,257·5	2,650·9	2,223·2*
Mahenge ...	Mahenge	3,352	8 40	36 43	9	14	334·6	264·5	339·0	308·9	95·1	39·7	18·4	14·8	14·5	42·7	64·4	232·6	1,769·2	2,106·2	1,369·9*
	Songea	3,826	10 42	35 40	10	14	236·5	244·2	283·6	121·8	16·4	2·1	0·8	3·7	2·2	10·3	40·6	175·9	1,138·1	1,328·9	667·7*
	Lipumba	3,270	10 48	35 05	—	4	211·3	268·6	233·0	77·4	19·9	2·6	0·8	0·3	0·9	0·5	70·4	163·5	1,049·2	1,227·8	883·1
	Milo	8,300	10 04	34 39	3	7	229·9	219·9	319·4	313·3	59·9	7·6	8·1	4·4	1·7	12·5	87·1	211·3	1,475·1	1,787·4	1,222·7*
Mwanza ...	Mwanza	3,709	3 32	32 53	11	15	77·0	88·2	140·0	231·2	75·7	26·6	4·0	27·0	35·0	71·4	123·7	113·1	1,012·7	1,161·4	876·5*
	Musoma	3,709	1 28	33 47	—	3	54·7	105·1	117·7	114·7	107·8	22·3	11·6	32·0	15·6	36·1	136·4	80·3	834·3	1,011·8	850·8
Bukoba ...	Bukoba	3,709	1 20	31 47	11	16	118·7	132·0	222·5	370·7	301·3	61·3	46·0	92·5	92·0	107·6	211·7	170·6	1,926·9	2,029·4	1,553·4*
	Biharamulo	4,350	2 42	31 26	—	4	128·8	113·8	138·6	172·5	93·1	16·3	0·1	28·8	37·7	40·8	82·8	154·4	1,007·7	1,096·6	876·2

Note.—* Indicates highest and lowest annual rainfall figures from British records only, as annual figures are not available from earlier records.

APPENDIX V.

REVENUE, FINANCIAL YEARS 1925–26, 1926–27.

	1925–26.		1926–27.	
	Shs.	Total, Shs.	Shs.	Total, Shs.
Receipts from Government Plantations :—				
Bagamoyo	18,717·25		16,315·00	
Dar es Salaam (including Mafia) ...	26,115·50		18,869·56	
Dodoma	100·00		Nil	
Kasanga	64·00		79·00	
Kigoma	920·53		940·18	
Kilwa	192·90		60·80	
Kilosa	411·00		546·70	
Lindi	300·00		375·00	
Lushoto	381·60		51·25	
Mahenge	169·00		191·00	
Miombo Government Farm	1,000·00		1,000·00	
Mikindani	160·80		320·00	
Morogoro	151·70		703·50	
Mwanza	653·88		132·55	
Pangani	1,223·00		1,445·16	
Tabora	571·72		533·70	
Tanga	37,631·10		13,993·00	
Utete	828·71		692·00	
		89,592·69		56,248·40
Miscellaneous Sales of Produce and Planting Material :—				
Morogoro Agricultural Station	147·80		1,732·36	
Mpanganya Agricultural Station ...	1,967·68		791·30	
Botanical Gardens, Dar es Salaam ...	39·50		53·03	
Headquarters Office, Dar es Salaam ...	179·90		5·97	
		2,334·88		2,582·66
Total		91,927·57		58,831·06

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